



Installation Handbook

Autoprime Interactive Fire Detection System



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1. Introduction

1.1 About the Handbook

This document describes in detail the installation of the **Autroprime Interactive Fire Detection System** (hereby called **Autroprime**), a system for small-to-medium-sized applications.

1.2 The Reader

This handbook is intended for technical personnel.

1.3 Reference Documentation

The table below shows an overview of the complete technical documentation that is available in several languages on the *Autroprime Documentation CD-ROM* delivered with the panel:

Documents on the Autroprime Documentation CD-ROM	Part number	File name
System Description	116-P-APRIME-SYSTEMD/XGB	aprimesystemd_xgb
Getting Started	116-P-APRIME-GESTART/EGB	aprimegestart_egb
Installation Handbook	116-P-APRIME-INSTALL/DGB	aprimeinstall_dgb
Connecting Loop Units	116-P-CONNECTLOOPUNIT/DGB	connectloopunit_dgb
Configuration Handbook	116-P-APRIME-CONFIGU/EGB	aprimeconfigu_egb
Operator's Handbook	116-P-APRIME-OPERATE/FGB	aprimeoperate_fgb
User Guide	116-P-APRIME-USERGUI/LGB	aprimeusergui_lgb
Wall Chart	116-P-APRIME-WALLCHA/LGB	aprimewallcha_lgb
Menu Structure	116-P-APRIME-MENUSTR/MGB	aprimemenustr_mgb
Datasheet; Fire Alarm Control Panel BS-200	116-P-BS200/CGB	bs200_cgb
Datasheet; Fire Alarm Control Panel BS-200M	116-P-BS200M/CGB	bs200m_cgb
Datasheet; Fire Alarm Control Panel BS-200L	116-P-BS200L/CGB	bs200l_cgb
Datasheet; Repeater Panel BS-211	116-P-BS211/CGB	bs211_cgb
Datasheet; Information Panel BV-210	116-P-BV210/CGB	bv210_cgb
Datasheet; Fire Brigade Panel BU-210	116-P-BU210/CGB	bu210_cgb
Datasheet; Mimic Driver BUR-200	116-P-BUR200/CGB	bur200_cgb

2. Pre-installation

2.1 Location

The Fire Alarm Control Panel or Operator Panel must be located in, or nearby, the entrance according to local regulations and in consultation with the fire brigade.

Repeater Panels, Fire Brigade Panels and Information Panels must be placed according to local regulations and in consultation with the fire brigade.

2.2 Environmental Requirements

The equipment complies to environmental conditions of IEC-721-3-3 class 3k5.

Ambient temperature: -5 to +55 C

Degree of protection:

- BS-200 and BS-200L: IEC-529/IP30
- BS-200M: IEC-529/IP32

2.3 Mounting Height / Space Requirement

To ensure optimal readability of the panels' display, the recommended mounting height of the panel top is approximately 175 cm above the floor.

2.4 Mounting Alternatives

The Fire Alarm Control Panel (BS-200, BS-200L, BS-200M) is to be surface mounted onto the wall.


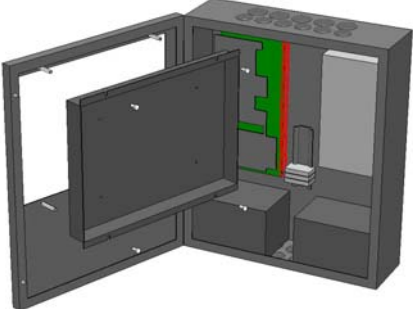




The Operator Panel (BS-210), which is an integrated part of the Fire Alarm Control Panel, can also be mounted separately outside a cabinet, either surface mounted onto the wall or mounted inside a 19" rack or console.


All other panel types; Repeater Panel (BS-211), Fire Brigade Panel (BU-210), Information Panel (BV-210), Mimic Driver (BUR-200) and the "Larmlagringspanel" BU-211 are to be surface mounted onto the wall or mounted inside a 19" rack or console.

For information on mounting alternatives for the maritime panel BS-200M and Mimic Cabinet BUR-200, refer to chapter 10.

3. Panels, Brackets and Cabinet

The Autoprime system provides the following panels, brackets and cabinets:

	<p>Fire Alarm Control Panel (BS-200, BS-200L, BS-200M)</p> <p>BS-200 is an integrated fire-alarm control panel for small-to-medium-sized installations. The panel serves as a stand-alone operating panel, or as a master panel in a networked system.</p> <p>Dimensions: HxWxD (mm): 420x346x140</p>
	<p>Cabinet (UE-1747)</p> <p>If the Operator Panel (BS-210) is mounted separately outside the cabinet, the door bracket is to be turned inside out, and fastened to the cabinet's door.</p> <p>Dimensions: HxWxD (mm): 420x346x140</p>
	<p>Operator Panel (BS-210)</p> <p>The panel is delivered as an integrated part of the Fire Alarm Control Panel but can also be mounted separately outside a cabinet onto a bracket (UD-731).</p> <p>Dimensions: HxWxD (mm): 310 x 220 x 45</p>
	<p>Repeater Panel (BS-211)</p> <p>The panel is identical to the the Operator Panel BS-210, with the exception of the alphanumeric keypad. Mounted onto a bracket (UD-731).</p> <p>Dimensions: HxWxD (mm): 310 x 220 x 45</p>
	<p>Fire Brigade Panel (BU-210)</p> <p>Mounted onto a bracket (UD-732).</p> <p>Dimensions (mm): HxWxD (mm): 310 x 154 x 45</p>
	<p>Information Panel (BV-210)</p> <p>Mounted onto a bracket (UD-732).</p> <p>Dimensions (mm): HxWxD (mm): 310 x 154 x 45</p>

	<p>Mimic Driver (BUR-200)</p> <p>The Mimic Driver is capable of driving 32 LEDs with series resistors on a mimic panel for additional indication of alarms. Provides also 8 standard monitored inputs.</p> <p>Dimensions: HxWxD (mm): 181x125x40</p> <p>For maritime applications, the Mimic Driver BUR-200 is delivered in a cabinet (BUR-200M) providing 16 programmable relays.</p>
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In addition, the Autoprime system provides the "Larmlagringspanel" BU-211 specifically designed for the Swedish Market.

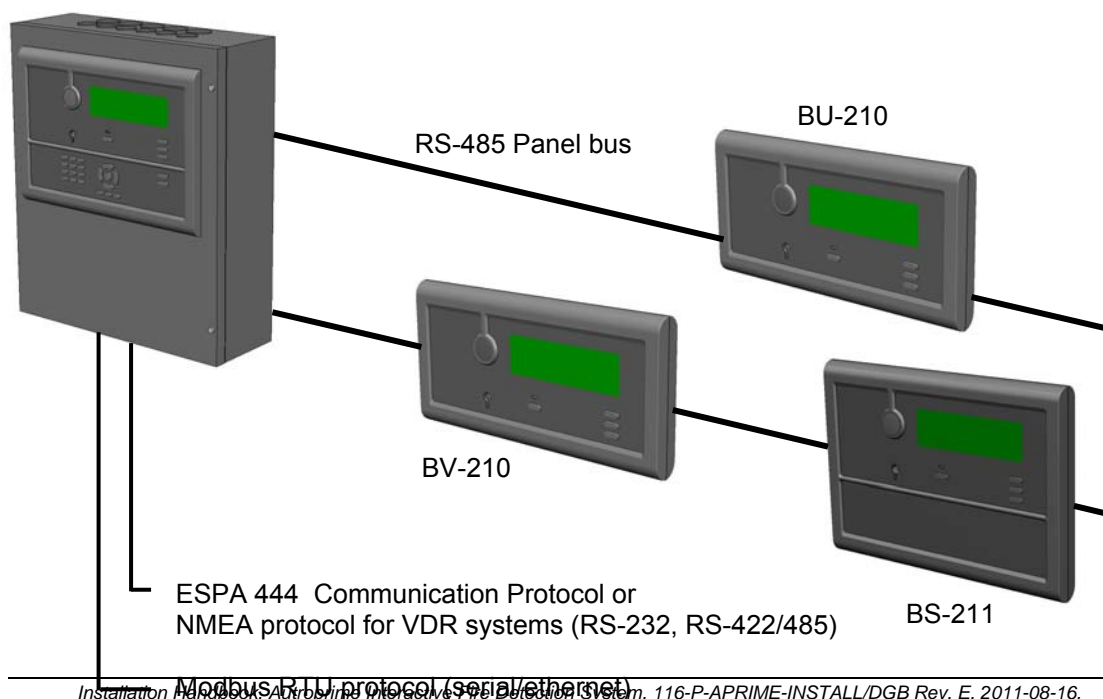
4. Interconnecting Panels on the Panel Bus

4.1 Overview

A maximum of 8 additional panels can be freely mixed and connected to the Fire Alarm Control Panel via the RS-485 panel bus, including Repeater Panels BS-211, Information Panels BV-210, Fire Brigade Panels BU-210 and Mimic Drivers BUR-200.

For information on cabling, refer to *Cable Connections*, chapter 9.1.

Fire Alarm Control Panel BS-200



5. Mounting Instructions

- Find the text foils in the relevant language for the panel, and insert the textfoils in the correct locations (there are two different foils). Through the small hole near the slot, use a small screwdriver or similar to slightly bend the edge (approx. 1mm) of each foil until the edge slips behind the opening of the slot. An overview of all foils is shown in Appendix 16.1.



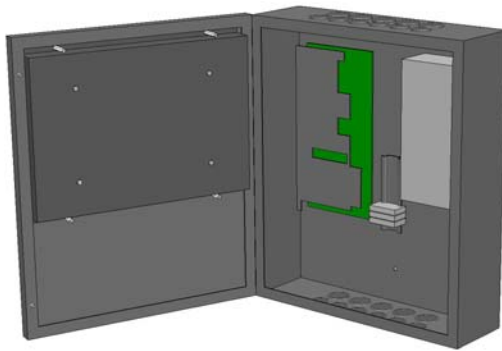
- Refer to the relevant mounting procedure below (A, B or C), consult the drawings and follow the steps.

Step	A) Mounting the Fire Alarm Control Panel (BS-200 and BS-200L. For information on BS-200M, see chapter 10)
1A	<ul style="list-style-type: none"> The cabinet has 3 mounting holes located at the rear. The upper holes are of key-hole-type. Insert the 2 upper screws in the wall according to the drawing. Open the cabinet's front door and hang the cabinet onto the screws. Insert the lower screw, then tighten all screws.
2A	<ul style="list-style-type: none"> Place the 2 batteries inside the cabinet according to the drawing. Fasten them with strips.
3A	<ul style="list-style-type: none"> Connect all external cables to the correct terminal points. Refer to chapter 1.1.

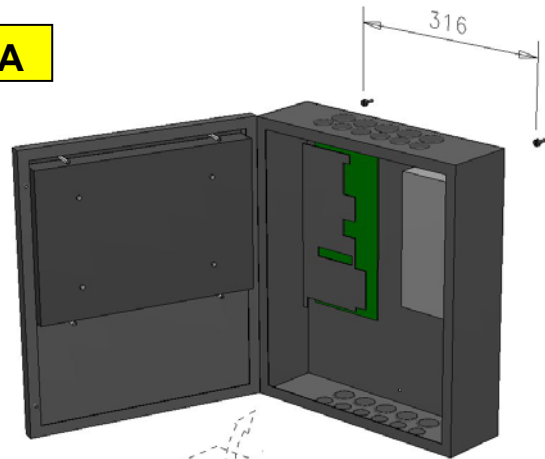
Step	B) Mounting the Operator Panel separately outside a cabinet (Operator Panel BS-210, an integrated part of BS-200)
1B	<ul style="list-style-type: none"> The cabinet has 3 mounting holes located at the rear. The upper holes are of key-hole-type. Insert the 2 upper screws in the wall according to the drawing. Open the cabinet's front door and hang the cabinet onto the screws. Insert the lower screw, then tighten all screws.
2B	<ul style="list-style-type: none"> Unscrew the 4 screws which connect the panel to the cabinet's front door. Remove the Operator Panel with its bracket mounted. Remove the bracket from the Operator Panel. Disconnect the internal cable from the Operator Panel.
3B	<ul style="list-style-type: none"> For cosmetic reasons, unscrew the extended nuts from the door bracket (which the Operator Panel was fastened to), and turn the door bracket inside out, then fasten it to the cabinet's door. Note: The maritime panel BS-200M requires the use of a rubber seal (UY-108) between the door bracket and the cabinet's front door. Plug the holes by the four plastic studs.
4B	<ul style="list-style-type: none"> Mount the Operator Panel's bracket onto the wall.
5B	<ul style="list-style-type: none"> Connect all external cables to the correct terminal points. Refer to chapter 9.7 and 9.8
6B	<ul style="list-style-type: none"> Place and centre the lower part of the panel onto the lower part of the bracket, then simply push the upper part of the panel towards the bracket until it snaps on.

Step	C) Mounting all other panels (Repeater Panel BS-211, Fire Brigade Panel BU-210, Information Panel BV-210)
1C	<ul style="list-style-type: none"> Set the correct address (1-9) by means of the Rotary switch located on the rear side of the panel (refer to Addressing Panels in the next chapter).
2C	<ul style="list-style-type: none"> Mount the panel bracket onto the wall.
3C	<ul style="list-style-type: none"> Connect all external cables to the correct terminal points. Refer to chapter 1.1.
4C	<ul style="list-style-type: none"> Place and centre the lower part of the panel onto the lower part of the bracket, then simply push the upper part of the panel towards the bracket until it snaps on.

1A

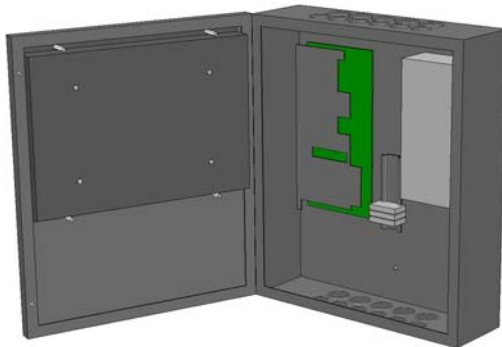


2A

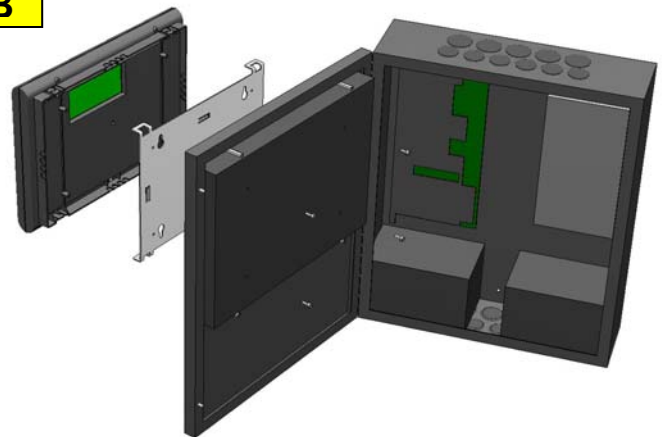


For adequate access to the inside of the panel when the door is opened, make sure that the distance between the panel's left side (front view) and the adjacent wall is approximately 30 cm.

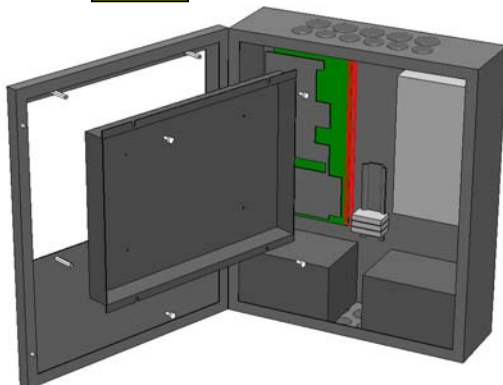
1B



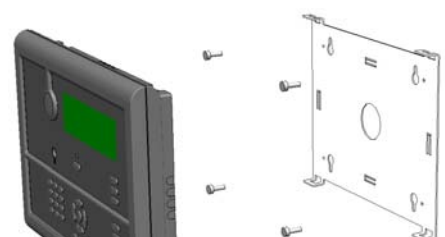
2B



3B



4B



For information on hole dimensions for brackets, refer to chapter 5.

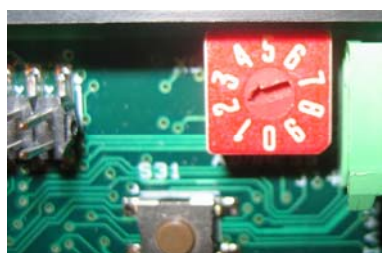
4C



6. Addressing Panels

6.1 Rotary Switch on Panels

All Autroprime panels (BS-200, BS-200M, BS-200L, BS-211, BU-210, BV-210) must be assigned addresses by means of the rotary switch located on the rear side of the panel. The addresses must be set before mounting.



6.2 Addressing the Fire Alarm Control Panel (BS-200)

The main Fire Alarm Control Panel (BS-200, BS-200L, BS-200M) must always have address 0 (the arrow pointing straight downwards). Address 0 is preset from the factory.

6.3 Addressing other Panels

All other panels connected to the RS-485 Panel Bus, including Repeater Panel BS-211, Fire Brigade Panel BU-210, Information Panel BV-210 and “Larmlagringspanel BU-211” have addresses from 1-9.

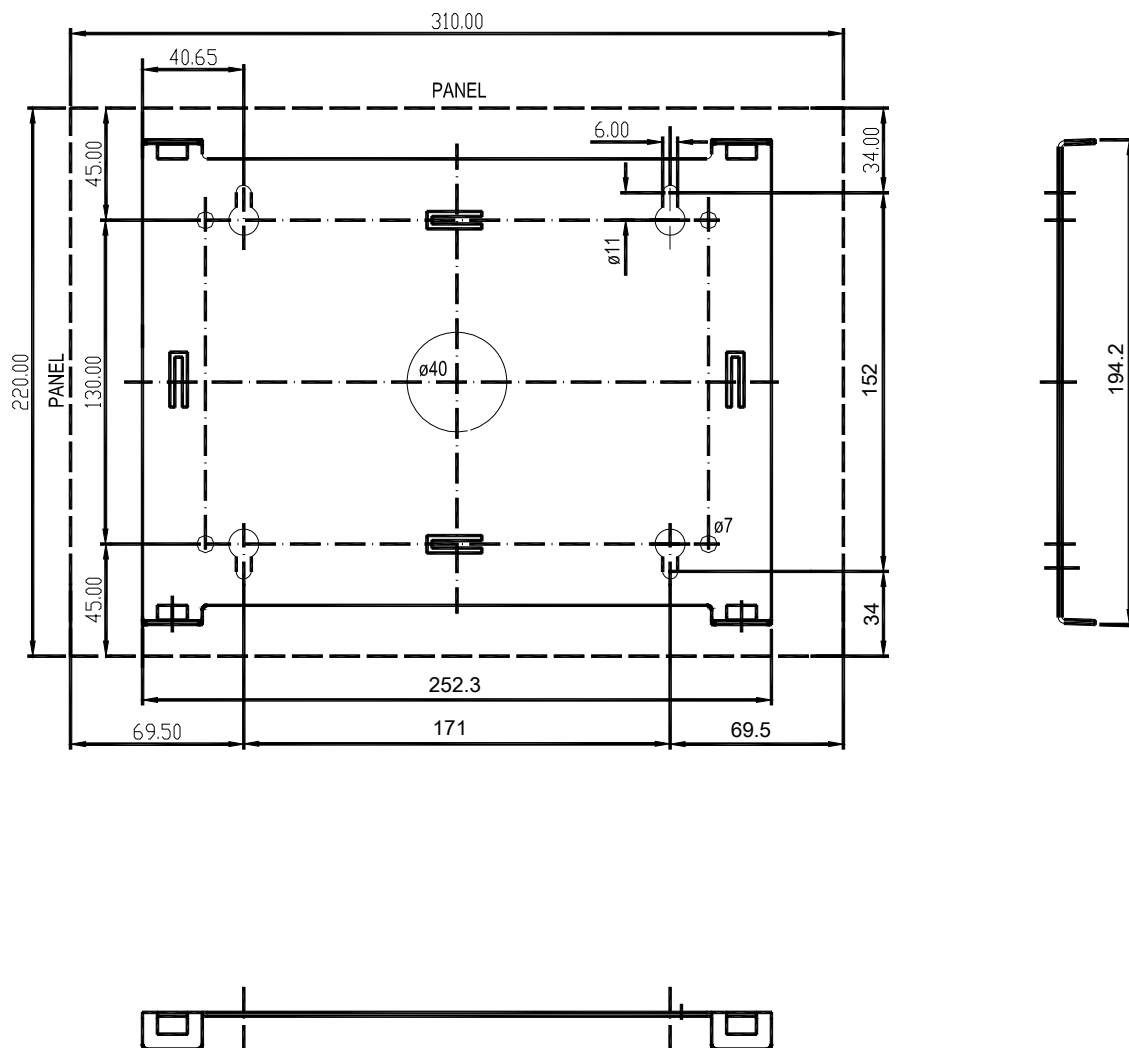
6.4 Addressing Mimic Drivers

To address the Mimic Drivers the X2 Panel Bus Address Switch is used. If S2.7 is set to Master, X2 sets the panel bus address. If S2.7 is set as slave, X2 sets the RS-485 daisy-chain slave address. The range for the switch is 1-9.

7. Mounting Drawings

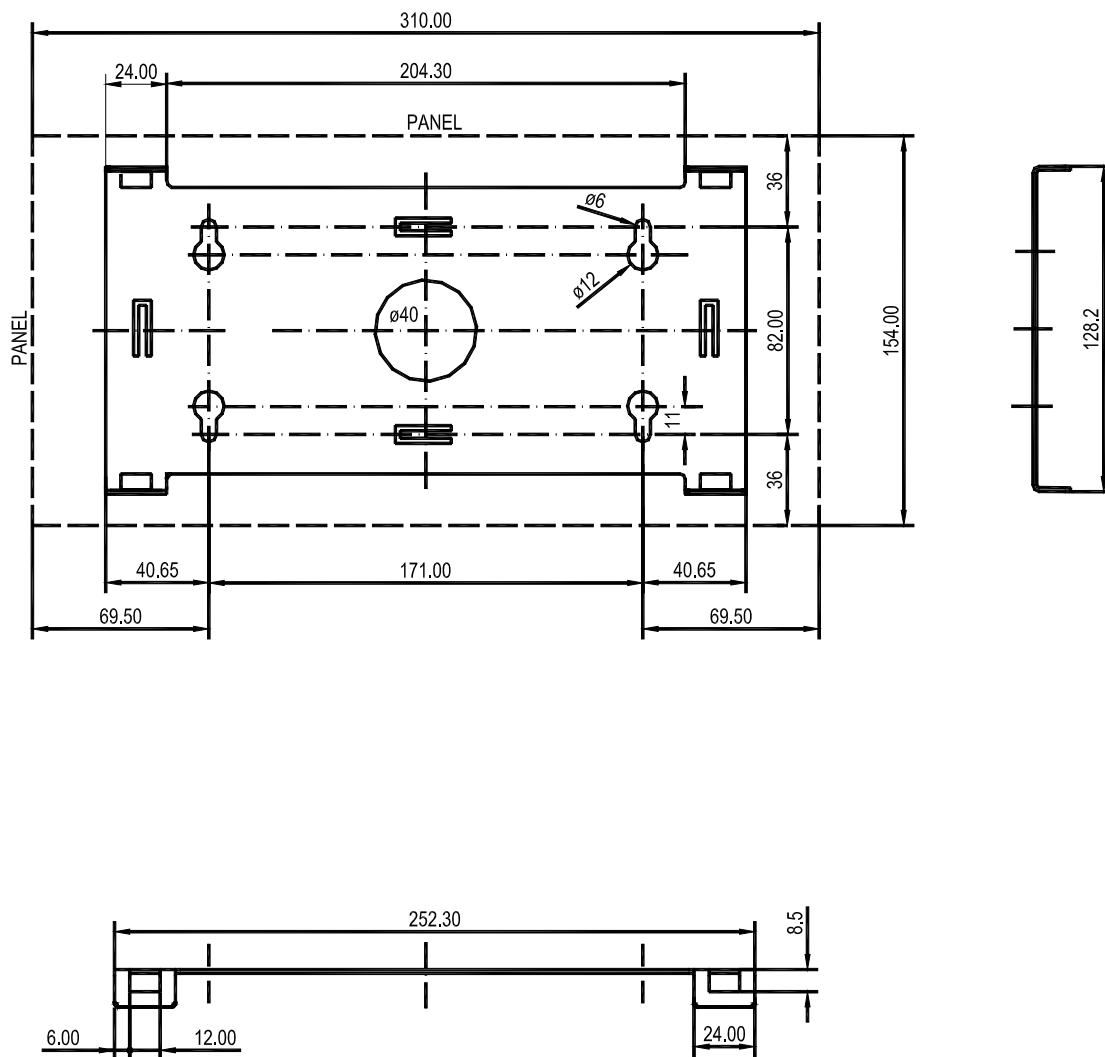
7.1 Hole Dimensions - Mounting Bracket for BS-210 and BS-211

The Operator Panel BS-210 (an integrated part of the Fire Alarm Control Panel BS-200) can be surface mounted onto a bracket on the wall outside the Fire Alarm Control Panel's cabinet.



7.2 Hole Dimensions - Mounting Bracket for BU-210, BU-211 and BV-210

The Repeater Panel (BS-211), Fire Brigade Panel (BU-210), Information Panel (BV-210) and "Larmlagringspanel" BU-211 are to be surface mounted onto a bracket on the wall (or mounted inside a 19" rack or console).



8. Cable Specifications

8.1 Overview

The table below gives the wire dimension in *square* millimeters or AWG (American Wire Gauge) for various cable lengths. Please refer to national/local standards for your country. Data may change. Please check with your local manufacturer.

	Maximum resistance / capacitance	Wire Dimensions (examples)		Maximum cable length	Remarks
	(Ω / μF)	(mm^2)	(AWG)	(m)	
Detection Loop (Loop current)	0,5 μF				
Setting : 100mA	(both conductors) 50 Ω	2 x 0,75	18	1000 m	
		2 x 1,0	17	1300 m	
		2 x 1,5	15	2000 m	
		2 x 2,5	13	3300 m	
150mA	31 Ω	2 x 0,75	18	600 m	
		2 x 1,0	17	800 m	
		2 x 1,5	15	1200 m	
		2 x 2,5	13	2050 m	
200mA	20 Ω	2 x 0,75	18	400 m	
		2 x 1,0	17	500 m	
		2 x 1,5	15	800 m	
		2 x 2,5	13	1300 m	
250 mA	13 Ω	2 x 0,75	18	250 m	
		2 x 1,0	17	350 m	
		2 x 1,5	15	500 m	
		2 x 2,5	13	850 m	
Inputs, Monitored				10m	
Inputs, Non-monitored				50m	
Output, Monitored (Alarm Sounder Circuits)	-	2 x 1,5	15	-	Determined by cable loss (0,5A maximum load)
	-	2 x 0,78	18	-	
Output, Relay				-	
Output, O.C				100m	
Battery	-	2 x 2,5	13	5 m	Maximum battery cable length is 5m Maximum cable resistance is 0.05 ohm
	-	2 x 1,5		3m	
	-				
Mains	-	3 x 1,5	15	-	-

	Maximum resistance / capacitance	Wire Dimensions (examples)		Maximum cable length	Remarks
	(Ω / μ F)	(mm ²)	(AWG)	(m)	
Panel Bus	Capacitance pr. 1km cable Capacitance < 200 nF Capacitance < 100 nF			Maximum cable segment length < 600 m < 1000 m Cat 5 or better Cable shall be twisted pair, characteristic impedance 100 ohm.	
Panel Bus Power supply	2-wire 24V supply: <u>Calculation vs power loss</u> The power loss in these cables has to take into consideration the maximum current at startup due to the Lamp test, which is 300 mA. Cable loss shall be limited to ensure at least 18V supply to each panel in this situation.				
RS 232	For cabinet internal connections only, limited to 10m. For USCG installations the length is limited to 6m (20 feet).				
RS485/422	Shielded cable is required if cable is >3m. Cable shall be twisted pair, 100 ohm characteristic impedance (Cat 5 cable recommended). For USCG installations the length is limited to 6m (20 feet).				

If multi-stranded cables are used, cable crimps shall be used.

8.2 Detection Loop Cables

8.2.1 General Considerations

The maximum cable length is determined by both cable loss and the at-site designed power consumption. Increasing current implies a demand for less cable loss, hence increased copper area or reduced cable length (refer to Guidance Table on the next page).

In the system service menu (Unit Configuration/Detection Loops) it is possible to limit the maximum possible current consumption for a selected detection loop. There are 4 different settings, 100mA (the default setting), 150mA, 200mA and 250mA. The current consumption per device is found in the data sheets of the respective units.

Note: The current consumption of LED indicators (on detectors or loop units) in the event of an alarm has to be included.

The current consumption of other loads has to be included (for example, loads applied to the output connection of detectors).

Units with varying current consumption, like sounders or strobe devices have to be included according to the configured setting, for example, the sound level may vary.

A 25% margin should be added for safety, to ensure correct operation in case of excessive current consumption, degraded connections (ageing), etc.

8.2.2 Guidance Table

Note:
A 25% margin should be added for safety

The table below provides **examples** showing different legal combinations of cable dimension, loop length, the number of detectors/sounders and the maximum loop current for a selected detection loop.

100mA

used where maximum current < 75 mA and cable resistance <50Ω

150mA

used where maximum current < 110mA and cable resistance <31Ω

200mA

used where maximum current <150 mA and cable resistance <20Ω

250mA

used where maximum current < 185 mA and cable resistance <13Ω

Examples

Cable dimension	Typical Loop length *1)	Typical numbers/combinations of Detectors/ Sounders	Loop Driver Current Mode
0,75mm ²	100m	20/0	100mA
0,75mm ²	100m	20/20	150mA
0,75mm ²	200m	40/0	100mA
0,75mm ²	200m	40/40	250mA
0,75mm ²	500m	100/0	100mA
0,75mm ²	1000m	127/0	100mA
1mm ²	100m	20/0	100mA
1mm ²	100m	20/20	150mA
1mm ²	200m	40/0	100mA
1mm ²	200m	40/40	250mA
1mm ²	500m	100/0	100mA
1mm ²	500m	70/30	200mA
1mm ²	1000m	127/0	100mA
1,5mm ²	100m	20/0	100mA
1,5mm ²	100m	20/20	150mA
1,5mm ²	200m	40/0	100mA
1,5mm ²	200m	40/40	250mA
1,5mm ²	500m	100/0	100mA
1,5mm ²	500m	80/35	250mA
1,5mm ²	1000m	127/0	100mA
2,5mm ²	100m	20/0	100mA
2,5mm ²	100m	20/20	150mA
2,5mm ²	200m	40/0	100mA
2,5mm ²	200m	40/40	250mA
2,5mm ²	500m	100/0	100mA
2,5mm ²	500m	80/35	250mA
2,5mm ²	1000m	127/0	100mA
2,5mm ²	1000m	70/30	200mA

*1) Loop length is the total distance of the 2-wire from output and back to input.

8.3 The Panel Bus Cable Requirements

8.3.1 Characteristic Impedance and Signal Attenuation

When dealing with specification of the Panel Bus cable, the important issues are the characteristic impedance and the attenuation of the signal at approximately 100 KHz. These parameters become more important the longer the cable is.

The parameters are defined by the geometry of the cable. Proper characteristic impedance is best obtained by a cable with twisted pairs. For short communication paths (less than approximately 100m) the characteristic impedance is not that important, and attenuation is low enough for most cables. However, the twisting improves the cable's ability to withstand external interference, and a twisted cable should be preferred when the cable runs in the vicinity of power cables and power devices as generators, transformers etc.

Longer paths require twisted pair cable and 100 ohms characteristic impedance, Cat 5 or similar cable intended for RS485 transmission.

The characteristic impedance shall be (at 100KHz:) 100 ohm +/- 15 ohm. Note that the characteristic impedance has nothing to do with the resistance of the cable. It is a property related to high-frequency transmission, regardless of its length. Typical examples are antenna cable (300 ohm), video cable (75 ohm).

Attenuation is defined by the wire to wire capacitance mostly, as long as the wire is at least 0.5mm². The total attenuation of the cable length must not exceed 9 dB @ 100KHz. If attenuation is not specified, normally the capacitance is defined. The capacitance should not exceed the specified value in order to achieve the total communication length.

8.3.2 High-voltage and Noisy Environments

In high-voltage environments (power plants, electrical machinery etc.) it is recommended that shielded cable is used. In this case, the shielding of the cable should only be connected at one end to avoid ground loops. If high-frequency noise is expected (>10MHz), then both ends should be connected. This may be present close to radio transmitting equipment or similar.

8.3.3 Cable Length and Power Consumption

The maximum cable lengths are defined for each segment between panels. Each panel has a built-in electrical repeat of the signal. Power loss, however, is defined from the maximum power consumption along the cable.

Note: RS-485 Panel Bus contains both the RS-485 signalling and the redundant power to all panels. Two four pair cable will be suitable.
Note: For redundancy, the power supply has to be supplied by two separated cables in a loop structure. See drawing (Simplified cable routing between panels).

NOTE: If separate power supplies are installed locally to source the panels, the following shall be ensured:

- The local power supply shall be galvanically isolated from its local power source and earth.
- The reference (0V) of this power shall be connected to 0V of the Fire Alarm Control Panel to ensure same reference for all signaling nodes. As described in the tables below, one of the pairs may be used for this.

In this case, an earth fault at this panel's power supply will be signaled as a global earth fault by the Fire Alarm Control Panel.

The local power supply to the panel should include a local backup source in case of loss of mains supply. In some installations it may be required (by local regulations) that the power supply includes a monitoring of internal condition in accordance to EN-54-4, and that it signals a fault if present. The wires from the power supply's fault relay output has to be connected to J23, replacing the jumper. A break in this circuit path makes the panel signal a fault in the system. Total loss of power will be signalled in the system as a missing panel.

	Panel 1 (BS-200)	Cable 1 From Fire Alarm Control Panel to external panel		Panel 2 (BS-210/ BU-210 etc)
J4/16	BU/BV A1	Pair 1+	J14/5	A 1
J4/17	BU/BV B1	Pair 1-	J14/6	B 1
J1/5	O.P. +24V 1	Pair 2 (both wires)	J14/1	24V IN 1
J1/6	O.P. 0V 1	Pair 3 (both wires)	J14/2	0V IN 1
	Not connected	Pair 4		Not connected

	Panel 2 (BS-210/BU-210 etc)	Cable 2a From external panel (n) to next external panel (n+1)	Panel 3 (BS-210/ BU-210 etc)	Terminals
J13/5	A 2	Pair 1+	A 1	J14/5
J13/6	B 2	Pair 1-	B 1	J14/6
J13/1	24V IN 1	Pair 2 (both wires)	24V IN 1	J14/1
J13/2	0V IN 1	Pair 3 (both wires)	0V IN 1	J14/2
	Not connected	Pair 4	Not connected	

	Panel 3 (BS-210/BU-210 etc)	Cable 2b Redundant Power between external panels	Panel 1 (BSA-200/J1)	Terminals
	Not connected	Pair 1	Not connected	
J13/3	24V IN 2	Pair 2 (both wires)	24V IN 2	J14/3
J13/4	0V IN 2	Pair 3 (both wires)	0V IN 2	J14/4
	Not connected	Pair 4	Not connected	

	Panel 2 (BS-210/BU-210 etc)	Cable 3 From last external panel and back to Fire Alarm Control Panel	Panel 1 (BS-200)	Terminals
J13/5	A 1	Pair 1+	BU/BV A2	J4/18
J13/6	B 1	Pair 1-	BU/BV B2	J4/19
J13/3	24V IN 2	Pair 2 (both wires)	O.P. +24V 2	J1/7
J13/4	0V IN 2	Pair 3 (both wires)	O.P. 0V 2	J1/8
	Not connected	Pair 4	Not connected	

See drawing, chapter 9.10.

8.4 Calculation of Power Consumption and Cable Loss

The fuses determine the maximum power load. The 24V cabling should be dimensioned according to the power consumption and the smallest voltage during load.

CAUTION



Sourcing of power shall only be supplied via the fused outputs (+24V Out 1- and Out 2) from the Fire Alarm Control Panel. Connecting to battery or charger is not allowed as the control of the charger voltage and current will become malfunctional.

8.5 Power Supply and Battery Capacity

The battery capacity must be calculated according to the total power consumption all units require in case no mains power is supplied. Note that national/local requirements for battery backup may vary.

General Rules

- Add all power loads in the Quiescent condition. The total current consumption should then be multiplied with the required hours of battery backup (typically 24 hours).
- Then add the additional load in Alarm condition. As above, multiply by the hours required for this condition (typically 0,5 hours)

The total required battery capacity which is now found needs a margin of about 15 % for the life cycle of the battery.

In addition, the total current supplied by the fuses +24V Out1 and +24V Out2 shall be safely below the 1.0A limit. The available total current from the charger is 5,0A, and care must be taken to ensure that the total charging current together with the overall load does not exceed 5,0A. Also, the charging current available shall be capable of charging the batteries fully within 24 hours.

Example

(24 hours Quiescent condition + 0,5 hours Alarm condition)

Consumers	Quiescent (mA)	Alarm (mA)	Quiescent 24 hours (Ah)	Alarm 0,5 hours (Ah)	Total (Ah)
BS-200	200	310	4,80	0,16	4,96
200 detectors	60	90	1,44	0,05	1,49
30 loop units	9	180	0,22	0,09	0,31
Panel Bus					
BU-210	20	60	0,48	0,03	0,51
BV-210	20	60	0,48	0,03	0,51
Sounders					
Output 1, 10 pcs	0	200	0	0,10	0,10
Output 2, 10 pcs	0	200	0	0,10	0,10
External load	100	200	2,40	0,10	2,50
			9,82	0,66	Total: 10,48Ah
			15% margin		~12Ah

9. Cable Connections

9.1 Cabling - Overview

Consult the drawings on the next pages and follow the procedure below.

NOTE: For specific information on the installation and cable connections for *maritime* installations, refer to chapter 10.

Fire Alarm Control Panel (BS-200, BS-200L, BS-200M)

- Insert the rubber glands (delivered with the panel) into the suitable cable inlets at the top. This should be done regardless of whether the cables are to be fed through the cable inlets at the top or bottom. If the external cables are to be fed from the bottom, remove the knockouts from the cable inlets that are to be used. Note: If the cables are fed from the bottom, batteries cannot be placed in the cabinet.
- Feed all the external cables into the cabinet through the suitable cable inlets.
- Fasten the cable by strips to the rear of the panel.
- Refer to *Description of Terminal Points – Main Board*, chapter 9.7.
- Connect the detection loop cables to the correct terminal points.
- Connect the panel bus cables to the correct terminal points (if several panels are interconnected).
- Interconnect the batteries with the small cable delivered with the cabinet (see drawing).
- Connect the internal temperature sensor cable to the correct terminal points (see drawing), then fasten the sensor to the battery with a piece of tape.
- For information on the connection of other peripheral units, refer to *Description of Terminal Points – Main Board*, chapter 9.7



*NOTE: In the fixed mains wiring to the panel a two-pole disconnect device must be provided to disconnect the equipment from the power supply when servicing is required. Normally, this switch is a two-pole automatic fuse located in the fuse terminal box at the premises. This fuse location must be marked "Fire Alarm System". The isolation of the mains wiring must be of either inflammability class V2 or the wiring has to be fixed to the cabinet separated from all other cables.

All other panels (Operator Panel BS-210, Repeater Panel BS-211, Fire Brigade Panel BU-210, Information Panel BV-210)

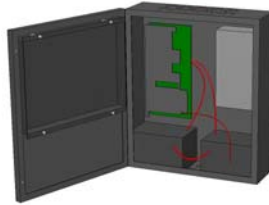
If in-wall cabling is used, feed the external cables through the hole of the bracket before mounting the panel (the cables should preferably stick out approximately 25cm from the surface of the wall).
or;

if on-wall cabling is used, remove the appropriate knockouts on the top, bottom, left or right hand side of the panel.

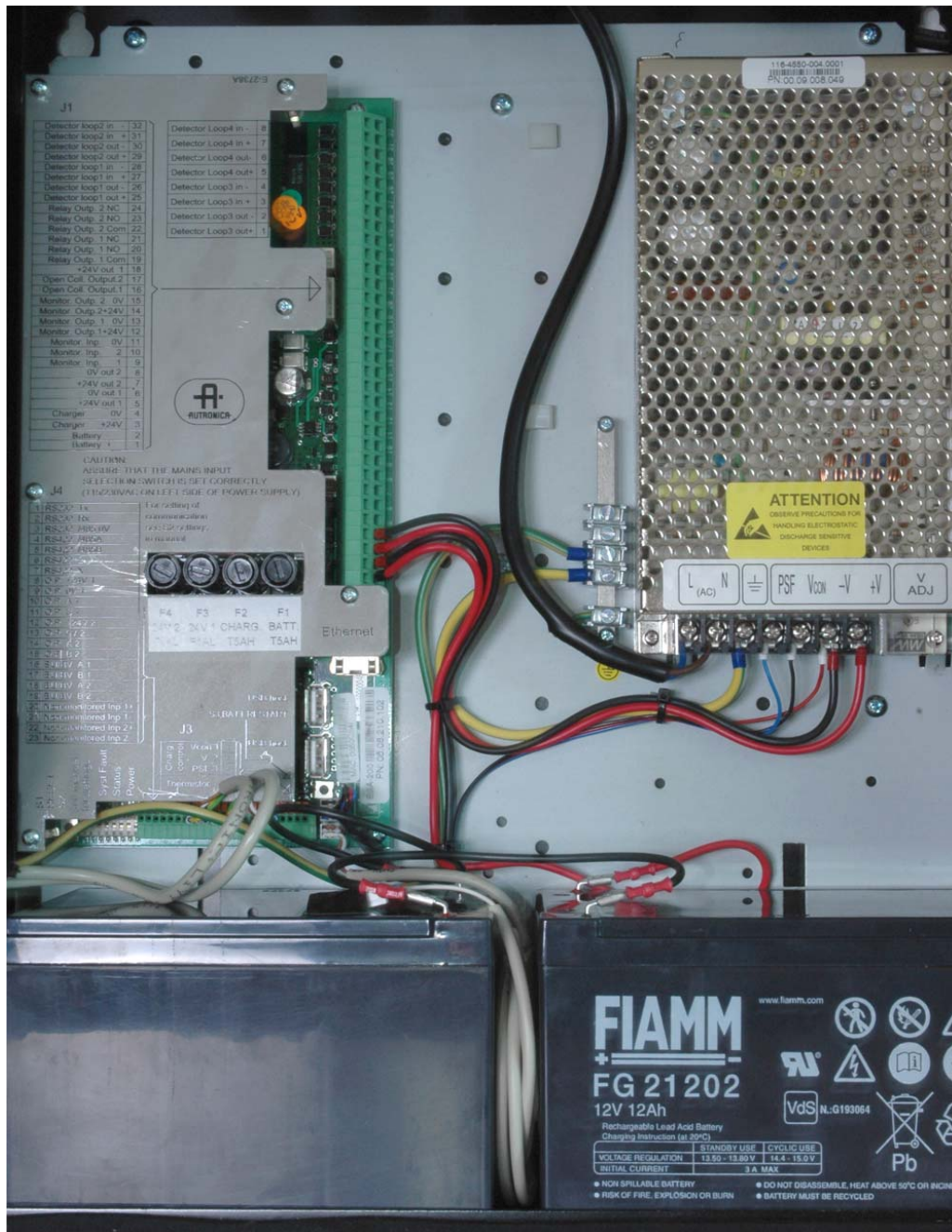
Before mounting the panel on the bracket, connect all external cables to the correct terminal points (the panel bus cable). Refer also to *Description of Terminal Points – Main Board*, chapter 9.7

- Verify that all cables are correctly and properly connected before connecting the mains cable and the internal battery cables.

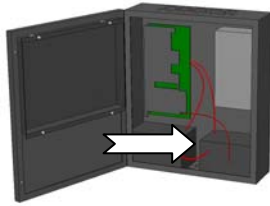
9.2 Overview Internal Cable Layout



NOTE: For specific information on the installation and cable connections for *maritime* installations, refer to chapter 10.



9.3 Battery Connections

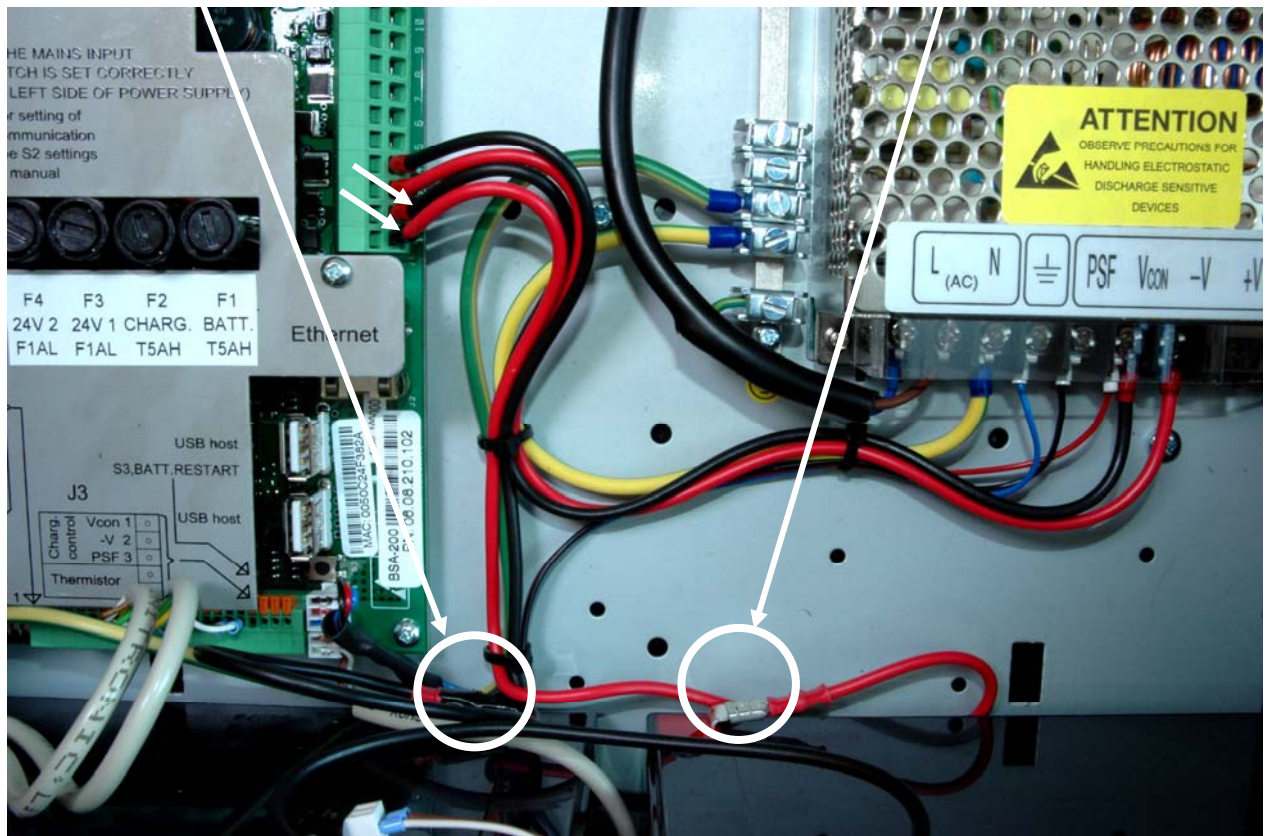


NOTE: For specific information on the installation and cable connections for *maritime* installations, refer to chapter 10.

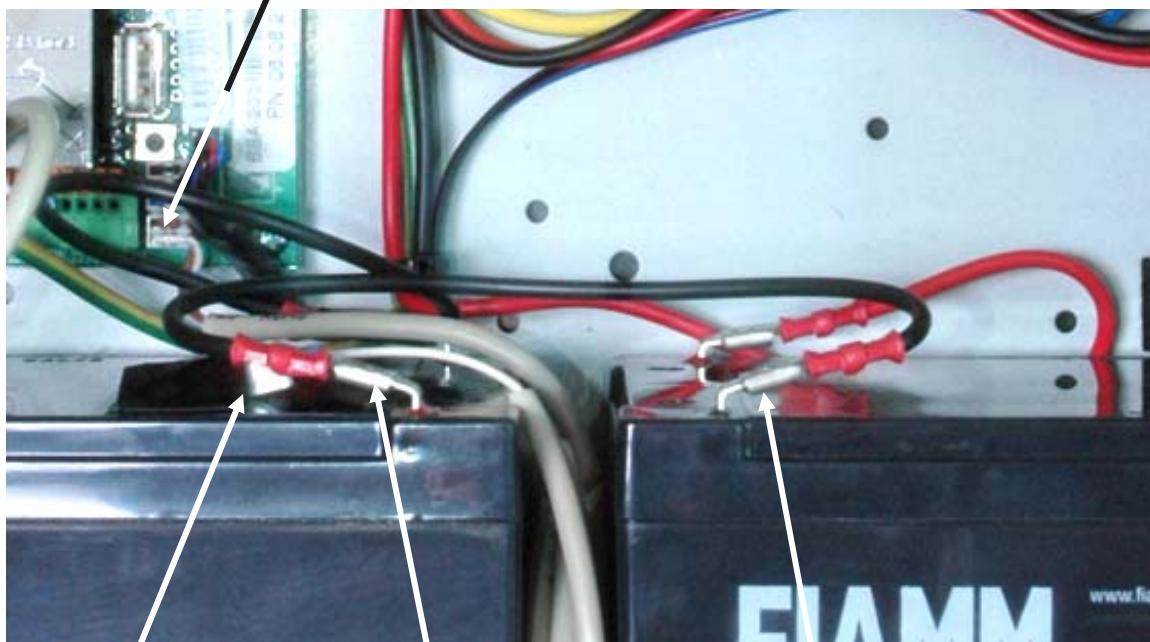
- Connect the black cable from the connector on the main board to the minus pole (black) on the battery on the left side.
- Connect the red battery cable to the plus pole (red) on the battery on the right hand side.

Black wire to minus pole -

Red wire to plus pole +



- Fasten the temperature sensor to the battery with a piece of tape as shown.
- Connect the internal temperature sensor cable to the correct terminal points.



*Temperature
Sensor*

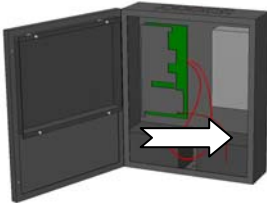
Plus pole +

Minus pole -

- Interconnect the other plus pole and minus pole on the batteries with the cable delivered with the cabinet.

9.4 Connections to Power Supply / Mains Power

NOTE: For specific information on the installation and cable connections for **maritime** installations, refer to chapter 10.

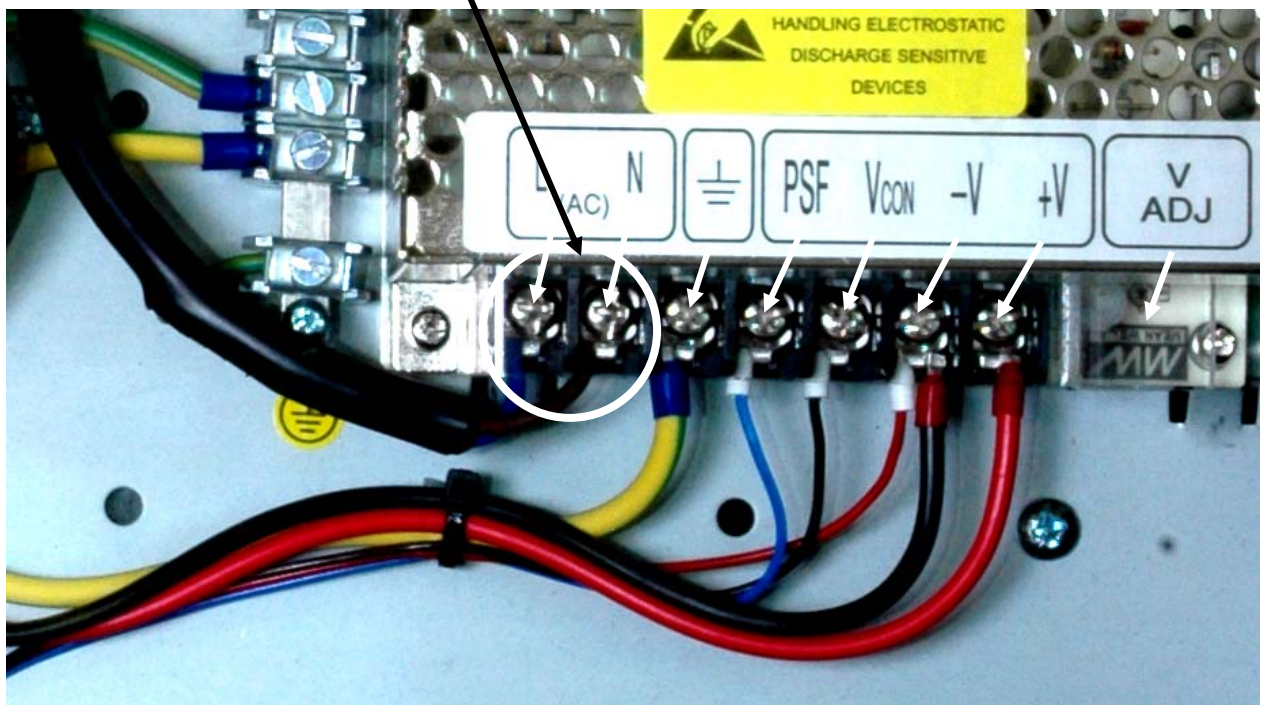


Each terminal point is indicated on the power supply's label straight above the terminal points. For protection purposes a plastic cover is placed on top of the terminal points.

- Connect the mains power cable to the correct terminal points (L and N)

Note that the isolation must be kept on the mains cable close up to the terminal points (L and N).

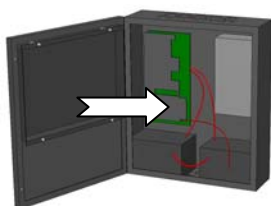
*Mains Power
Terminal Points
(L and N)*



Caution

Do NOT touch the potentiometer labeled V, ADJ.

9.5 Fuses

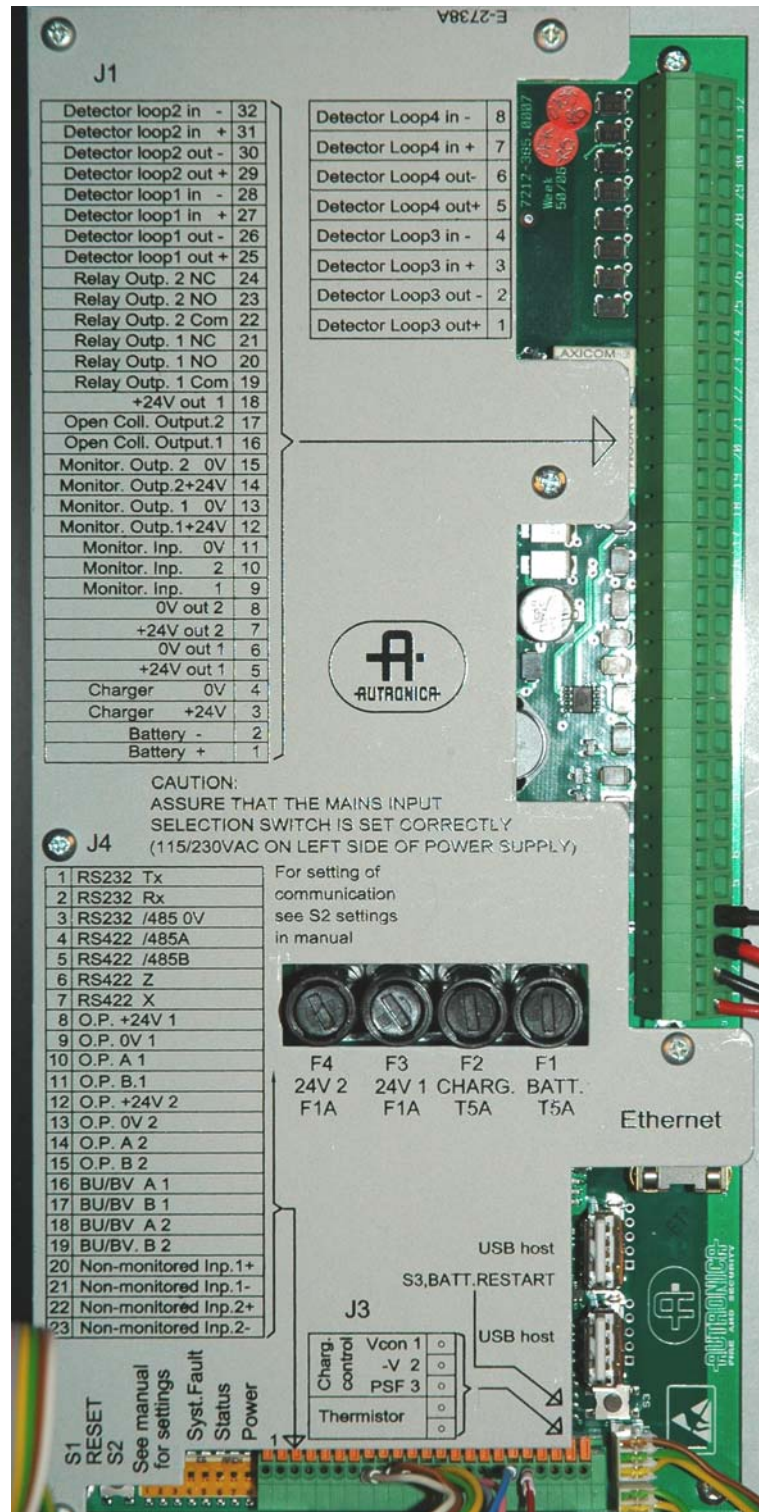


The Fire Alarm Control Panel is provided with 4 fuses, easily accessible from the main circuit board inside the cabinet.



Fuse	Value	Description
F4	1A Fast	24V output 2. Used to power external equipment. Typical application will be to power the panel bus +24V 2
F3	1A Fast	24V output 1. Used to power external equipment. Typical application will be to power the panel bus +24V 1
F2	5A Slow	Main board fuse.
F1	5A Slow	Battery connection fuse. Used to cut the connection between the battery and the charger in the event that the battery shorts out.

9.6 Terminal Points Overview – Main Board




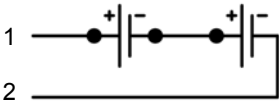







9.7 Description of Terminal Points – Main Board

NOTE: For specific information on the installation and cable connections for **maritime** installations, refer to chapter 10.

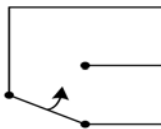
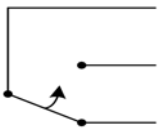
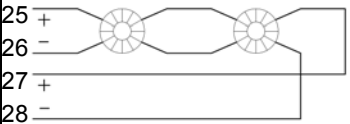
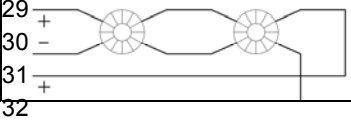
9.7.1 Main Terminal Block J1

The main spring-loaded connector block J1 is capable of up to 4mm² solid core cables or up to 2.5mm² multi-stranded core cables. If multistranded cables are used, cable crimps should be used.

Note that first connector J1.1 is physically located at the lower end of the terminal block (refer to the picture on the previous page).

J1-x	Description			Internal	External
1	Battery +	Fuse F1, T5AH	For connection of standby battery	1 	
2	Battery -			2 	
3	Charger +24V	Fuse F2, T5AH	For connection of internal charger	3 	Battery charger or 24V supply
4	Charger 0V			4 	
5	+24V out 1	Fuse F3 F1AL. Max 1A (includes output 18)	Power to panel bus. (24V1).	5 	
6	0V out 1			6 	
7	+24V out 2	Fuse F4 F1AL. Max 1A	Power to panel bus (24V2).	7 	
8	0V out 2			8 	
9	Monitored Input 1		User configurable input. Monitored for open and short circuit. 2k resistor to 0V. Activates at 910 ohm to 0V.		

J1-x	Description			Internal	External
10	Monitored Input 2		User configurable input. Monitored for open and short circuit. 2k resistor to 0V. Activates at 910 ohm to 0V.		
11	Monitored Input 0V		0V reference for Monitored Inputs 1 & 2		
12	Monitored Output 1 +24V	0,5 A resettable fuse.			
13	Monitored Output 1 0V				
14	Monitored Output 2 +24V	0,5 A resettable fuse.	Default configured as Fire Alarm Device Output. Monitored for short and open circuit. 2kohm end resistor. Max 500mA.		
15	Monitored Output 2 0V				
16	Open Collector Output 1		User configurable Open collector output. Non-monitored Switches to 0V at activation. Max. 0,5A		
17	Open Collector Output 2		User configurable Open collector output. Non-monitored Switches to 0V at activation. Max. 0,5A		

J1-x	Description			Internal	External
18	Auxiliary1 +24V out	Same fuse as J1.7	Supply voltage for loads connected to Open collector outputs 1 and 2. Max.1A		
19	Relay Output 1 Com				
20	Relay Output 1 NO				
21	Relay Output 1 NC		Default configured as Fire Alarm Routing Equipment. (FARE) Potential free change- over contact. Non- monitored. Max. 30VDC/1A		
22	Relay Output 2 Com				
23	Relay Output 2 NO				
24	Relay Output 2 NC		Default configured as (FWRE) Fault Warning Routing Equipment. Potential free change- over contact. Non- monitored. Max.30VDC/ 1A	(non-energized)	
25	Detection Loop1 out +		For connection of Max 127 detectors/ loop units		
26	Detection Loop1 out -				
27	Detection Loop1 in +				
28	Detection Loop1 in -				
29	Detection Loop2 out +		For connection of Max 127		
30	Detection Loop2 out -				

J1-x	Description			Internal	External
31	Detection Loop2 in +		detectors/ loop units		
32	Detection Loop2 in -				

9.7.2 Auxiliary Terminal Block J4

The auxiliary spring-loaded connection block J4 is capable of cables up to 0,5mm² single or multi stranded cables. If multi stranded cables are used, cable crimps should be used.

J4-x	Description		Internal	External
1	Multifunction serial port RS-232 TX	External Interface Optional data lines		
2	Multifunction serial port RS-232 RX			
3	Multifunction serial port RS-232/422/485 0V			
4	Multifunction serial port RS-422/485 A			
5	Multifunction serial port RS-422/485 B			
6	Multifunction serial port RS-422 Z			
7	Multifunction serial port RS-422 X			
8	Operator Panel Output +24V	Connections to Operator Panel (Return/Input for redundancy).		
9	Operator Panel Output 0V			
10	Operator Panel Output A			
11	Operator Panel Output B			
12	Operator Panel Input +24V			
13	Operator Panel Input 0V			
14	Operator Panel Input A	Connections to Operator Panel (Return/Input for redundancy).		
	Operator Panel Input B			
15		If no additional panels are connected to the panel bus, return/input from operator panel at J4-18 and J4-19.		
16	BU/BV/Mimic Driver Output A	Connections to panel bus. Connects from unit to unit. (Return/Input for redundancy)		
17	BU/BV/Mimic Driver Output B			
18	BU/BV/Mimic Driver Input A			

19	BU/BV/Mimic Driver Input B			
20	Non-monitored Input 1 +	User configurable input Activates on closing contacts between 24VDC and 0V. Observe polarity		
21	Non-monitored Input 1 -			
22	Non-monitored Input 2 +	User configurable input Activates at application of 24VDC. Observe polarity		
23	Non-Monitored Input 2 -			

9.7.3 User Configurable Inputs

User configurable inputs can be used for

- Day/Night input
- User Configurable input
- Morse input
- Mute Fire Alarm Device (FAD) input
- Reset in
- Silence in
- Fire Alarm Routing Equipment (FARE) feedback (signal from fire brigade)
- Activate all alarms
- Monitored Fault Warning Routing Equipment, FWRE

9.7.4 User Configurable Outputs

User configurable outputs can be used for

- User Configured output (or General output)
- Reset Out
- Silence Out
- Disable Out
- Silent Alarm Out
- Small Alarm Out
- Fire Alarm Device, FAD
- Fire Alarm Routing Equipment, FARE
- Fault Warning Routing Equipment, FWRE

9.8 Connection of Communication Cables inside the Cabinet (Fire Alarm Control Panel)

CAUTION



Do **not** connect the 24V wire to the terminal points used for communication (A and B terminals). This will lead to malfunction of the communication circuits.

9.8.1 Connection of internal communication cables in a standalone cabinet

Delivered from the factory, the return/inputs (Input A and Input B) from the integrated operator panel (BS-210) in a standalone cabinet are connected at J4-18 and J4-19 as shown below.

J4																						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
							Output +24V	Output 0V	Output A	Output B	Input +24V	Input 0V					Input A	Input B				

9.8.2 Connection of communication cables when additional panels are connected on the Panel Bus

When additional panels (BU-, BV-, BS-panels, Mimic Drivers) are connected on a panel bus, the following connections apply:

- The return/inputs (Input A and Input B) from the integrated Operator Panel (BS-210) must be connected at J4-14 and J4-15 as shown below.
- The communication cables to the external Panel Bus must be connected as shown below (J4-16 to J4-19).

J4																						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
															To Panel Bus							
							Output +24V	Output 0V	Output A	Output B	Input +24V	Input 0V	Input A	Input B	Output A	Output B	Input A	Input B				

9.9 Panel Bus Connections to BU-, BV- and BS-panels

CAUTION




Do not connect the 24V wire to the terminal points used for communication (A and B terminals). This will lead to malfunction of the communication circuits.

Note that when connecting additional panels on a panel bus, the communication cables inside the cabinet (Fire Alarm Control Panel) must be connected as shown in chapter 9.8.2.

If additional panels are to be connected to the RS-485 Panel Bus, the additional panel's Panel Bus connector J13 and J14 is used. This connector is located on the rear side of the BU-, BV- and BS-panels.

Panel Bus connector on additional panels (viewed from rear side of panel where cables are to be connected)

	J14							J13						
	+24Vin1	0V in 1	+24Vin2	0v in 2	A1	B1	GND	+24Vin1	0V in 1	+24Vin2	0v in 2	A2	B2	GND
	Panel Bus In							Panel Bus Out						

9.10 Overview Panel Bus

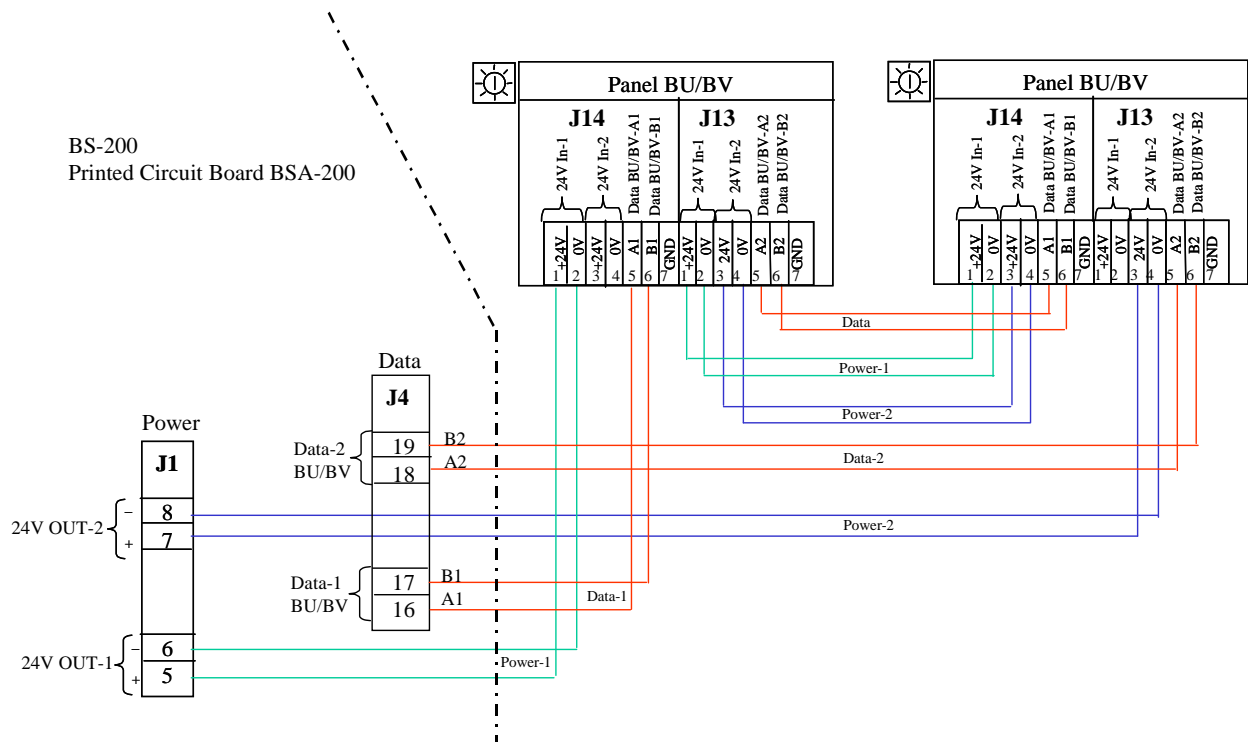
CAUTION



Do not connect the 24V wire to the terminal points used for communication (A and B terminals). This will lead to malfunction of the communication circuits.

The termination point "GND" is available for termination of the shield from a shielded cable. In this way, it is possible to establish a through-connected shielded cable. Note that it is not required to terminate this point to an Earth connection.

Connection of panels on the Panel Bus



9.11 Connections to Mimic Drivers (BUR-200)

NOTE: For specific information on the installation and cable connections for **maritime** installations, refer to chapter 10.

The BUR-200 is a Mimic Driver that is capable of driving 32 LEDs with series resistors on a mimic panel for additional indication of alarms. In addition, 8 standard monitored inputs can be used for reading various switches.

Power redundancy is achieved by using a daisy-chain connection with master and slave drivers. A maximum of 8 Mimic Drivers can be connected to the panel bus, providing a total of 256 outputs and 64 monitored inputs.

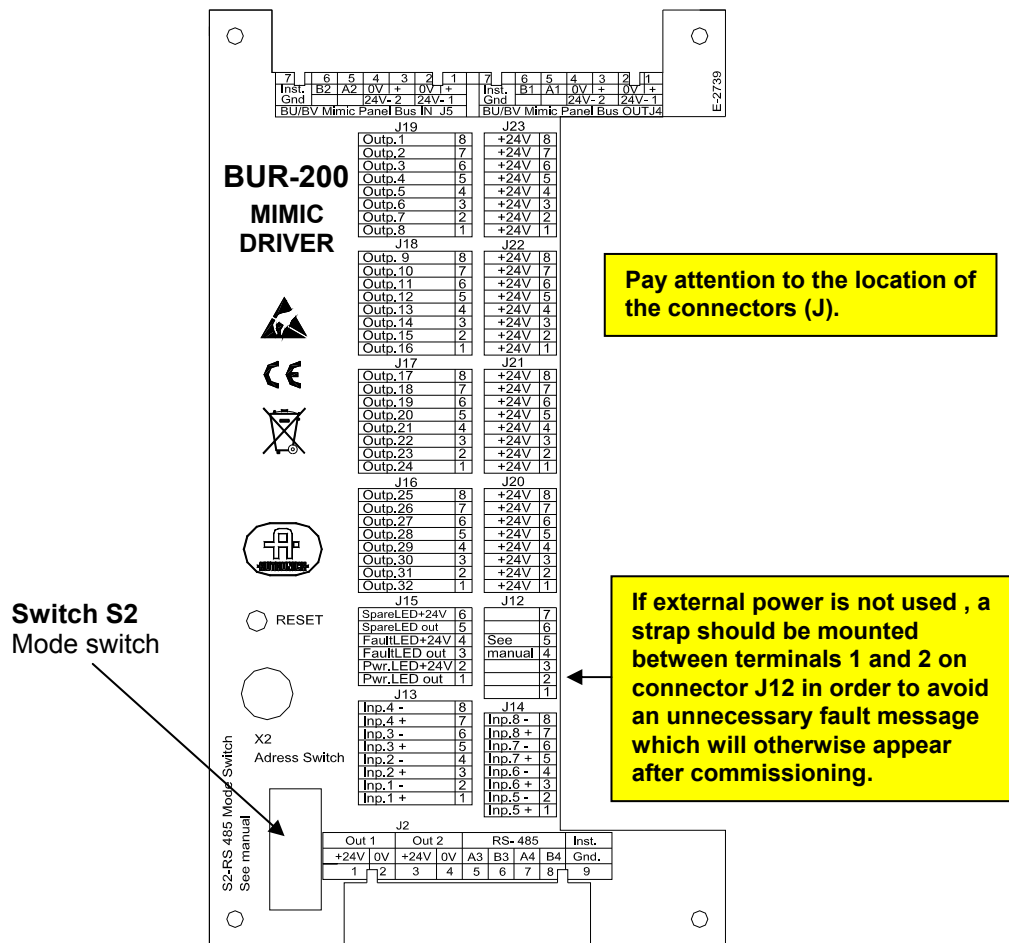
Note that when connecting additional panels on a panel bus, the communication cables inside the cabinet (Fire Alarm Control Panel) must be connected as shown in chapter 9.8.2.

CAUTION



Do not connect the 24V wire to the terminal points used for communication (A and B terminals). This will lead to malfunction of the communication circuits.

9.11.1 Terminal Points – Overview



9.11.2 Switch Settings

RS-485 termination and board mode switch.

Switch	Description
S2.1	RS-485 3 Failsafe termination (see description below)
S2.2	
S2.3	RS-485 3 Line termination
S2.7	BUR-200 Master/Slave select (ON: Master, OFF: Slave)
S2.8	Toggle function: impedance versus light intensity.

Switch Settings Failsafe and Line Termination

Master and the *last** Slave: The switches S2.1, S2.2 and S2.3 are to be set to ON.

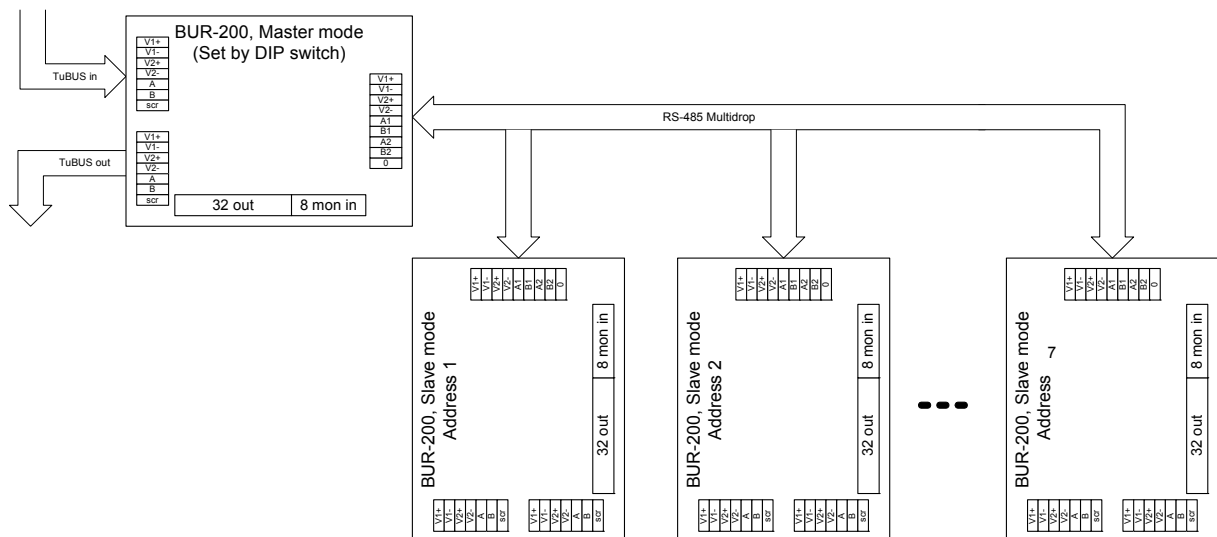
Other Slaves: The switches S2.1, S2.2 and S2.3 are to be set to OFF.

*Refer to the next chapter: Connection of Master and Slave Mimic Drivers.

X2 Panel Bus Address Switch

If S2.7 is set to Master, X2 sets the panel bus address. If S2.7 is set as slave, X2 sets the RS-485 daisy-chain slave address. The range for the switch is 1-9.

9.11.3 Connection of Master and Slave Mimic Drivers



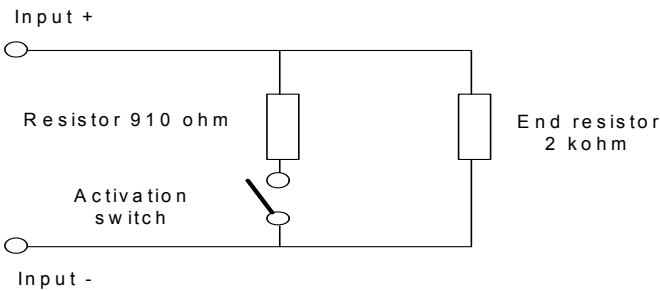
9.11.4 Connections for Panel Bus

7	6	5	4	3	2	1	7	6	5	4	3	2	1
Inst	B2	A2	0V	+	0V	+	Inst	B1	A1	0V	+	0V	+
Gnd			24V- 2		24V- 1		Gnd			24V- 2		24V- 1	
BU/BV Mimic Panel Bus IN J5							BU/BV Mimic Panel Bus OUT J4						

9.11.5 Connections for Slave Panels

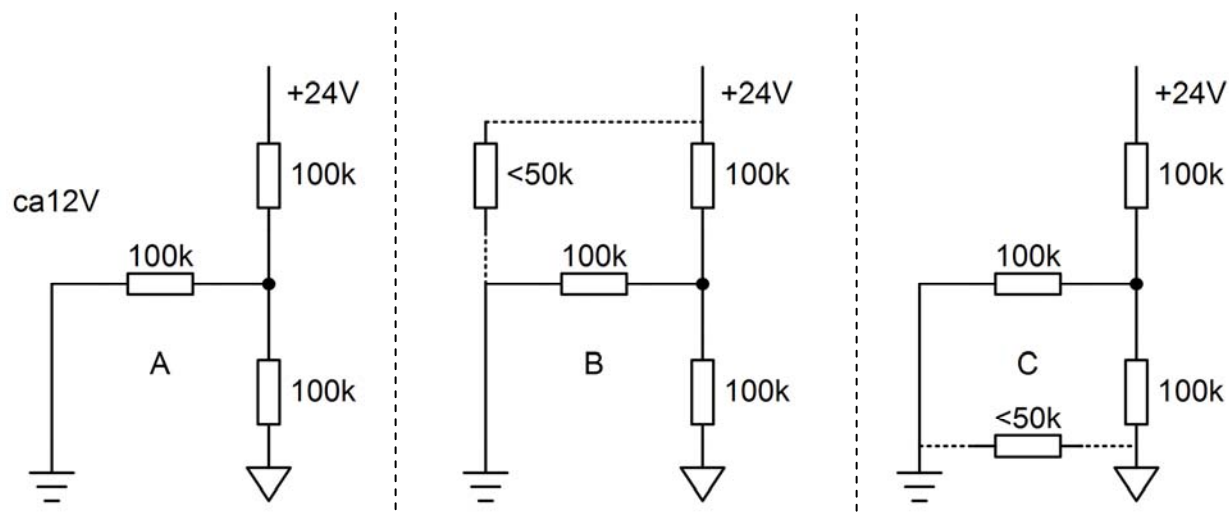
Out 1		Out 2		RS-485				Inst.
+24V	0V	+24V	0V	A3	B3	A4	B4	Gnd.
9	8	7	6	5	4	3	2	1

9.11.6 Terminals for monitored inputs



9.12 Ground Fault

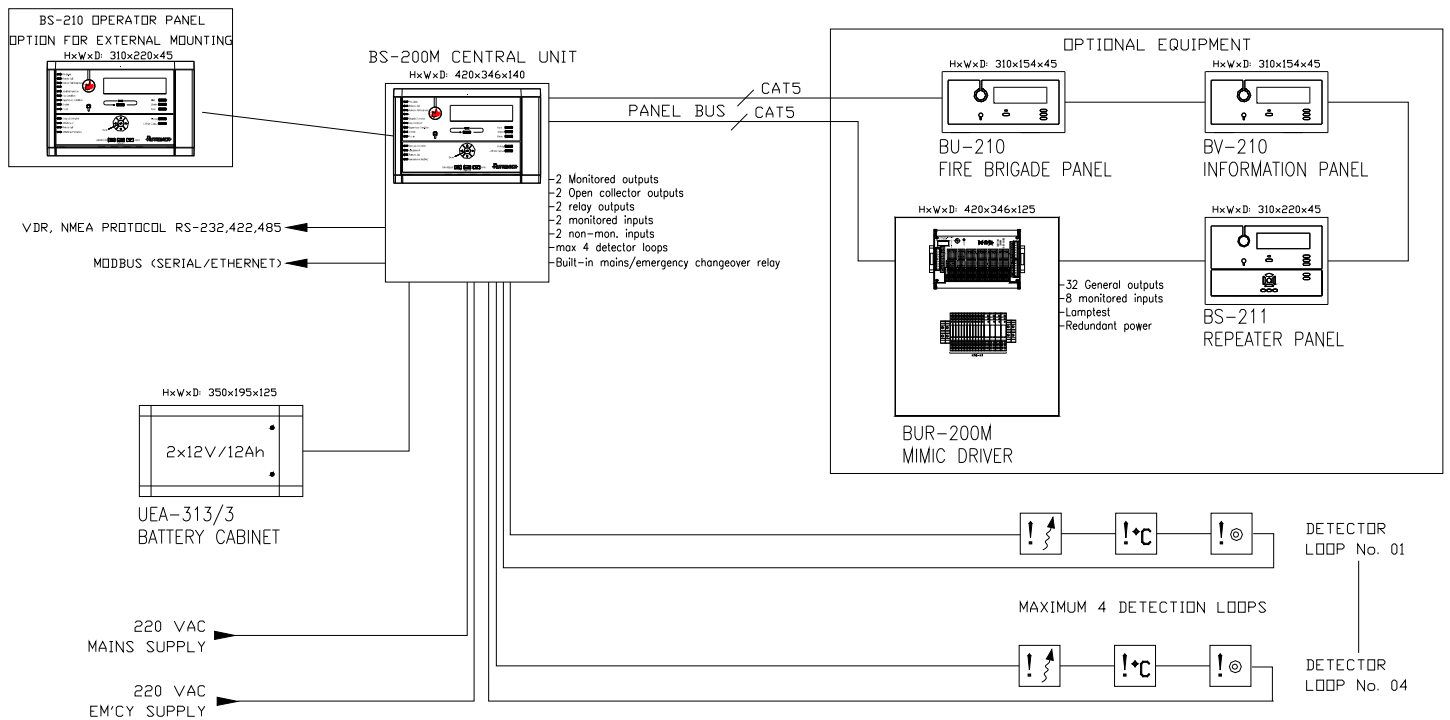
- A) Normal situation, there shall be approximately 12VDC between GND and 0V.
- B) Ground fault to +24V, if there is less than 50kohm between GND and +24V.
- C) Ground fault to 0V, if there is less than 50kohm between GND and 0V.



10. Maritime Installations

10.1 Typical Maritime Installation – Overview

The overview below shows an example of a typical system layout for a maritime installation.

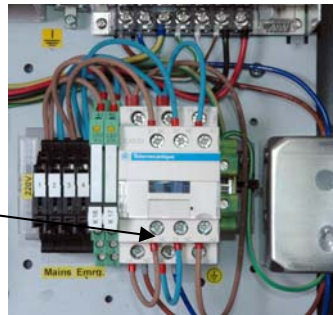
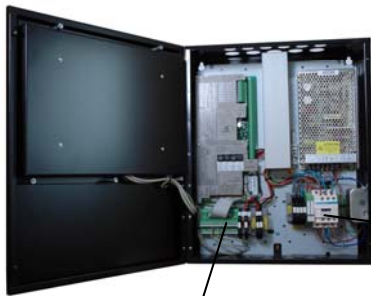


10.2 Fire Alarm Control Panel BS-200M

The BS-200M is specifically designed for use in maritime applications. The panel is provided with a filter and a connection block for cable connections.

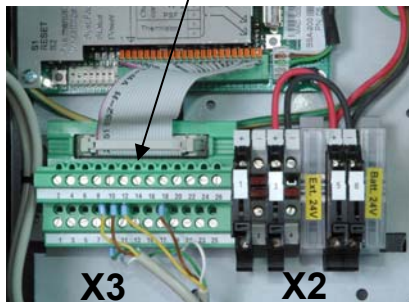
10.2.1 External Connections

**116-71211549 (230VAC) and
116-71211550 (110VAC)**



X1

X1	Description
1	Mains 110/230 VAC
2	Mains 110/230 VAC
3	Emergency 110/230 VAC
4	Emergency 110/230 VAC
5	Earth
K15	Change-over Relay
K16	Mains Fault
K17	Emergency Fault



X3

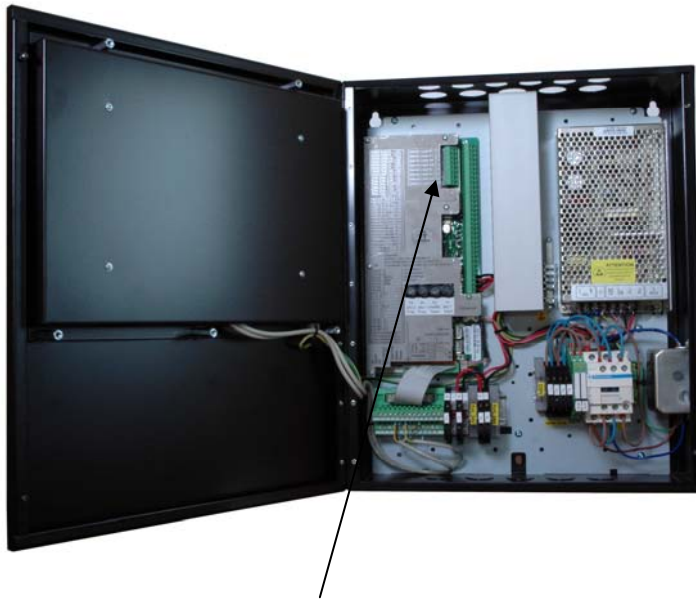
X2

X2	Description
1	External 24V +
2	External 24V -
3	External 24V +
4	External 24V -
5	Battery 24V +
6	Battery 24V -

X3	Description	
1	Multifunction Serial Port RS-232 TX	External Interface optional data lines.
2	Multifunction Serial Port RS-232 RX	
3	Multifunction Serial Port RS-232/422/485 0V	
4	Multifunction Serial Port RS-422/485 A	
5	Multifunction Serial Port RS-422/485 B	
6	Multifunction Serial Port RS-422 Z	
7	Multifunction Serial Port RS-422 X	
8	Operator Panel Output +24V	Connections to Operator Panel (return/input for redundancy).
9	Operator Panel Output 0V	
10	Operator Panel Output A	
11	Operator Panel Output B	
12	Operator Panel Input +24V	
13	Operator Panel Input 0V	Connections to Operator Panel (Return/input for redundancy). If no additional panels are connected to the panel bus, return/input from operator panel at J4-18 and J4-19.
14	Operator Panel Input A	
15	Operator Panel Input B	
16	BU/BV/Mimic Driver Output A	Connections to panel bus. Connects from unit to unit (Return/input for redundancy).
17	BU/BV/Mimic Driver Output B	
18	BU/BV/Mimic Driver Input A	
19	BU/BV/Mimic Driver Input B	

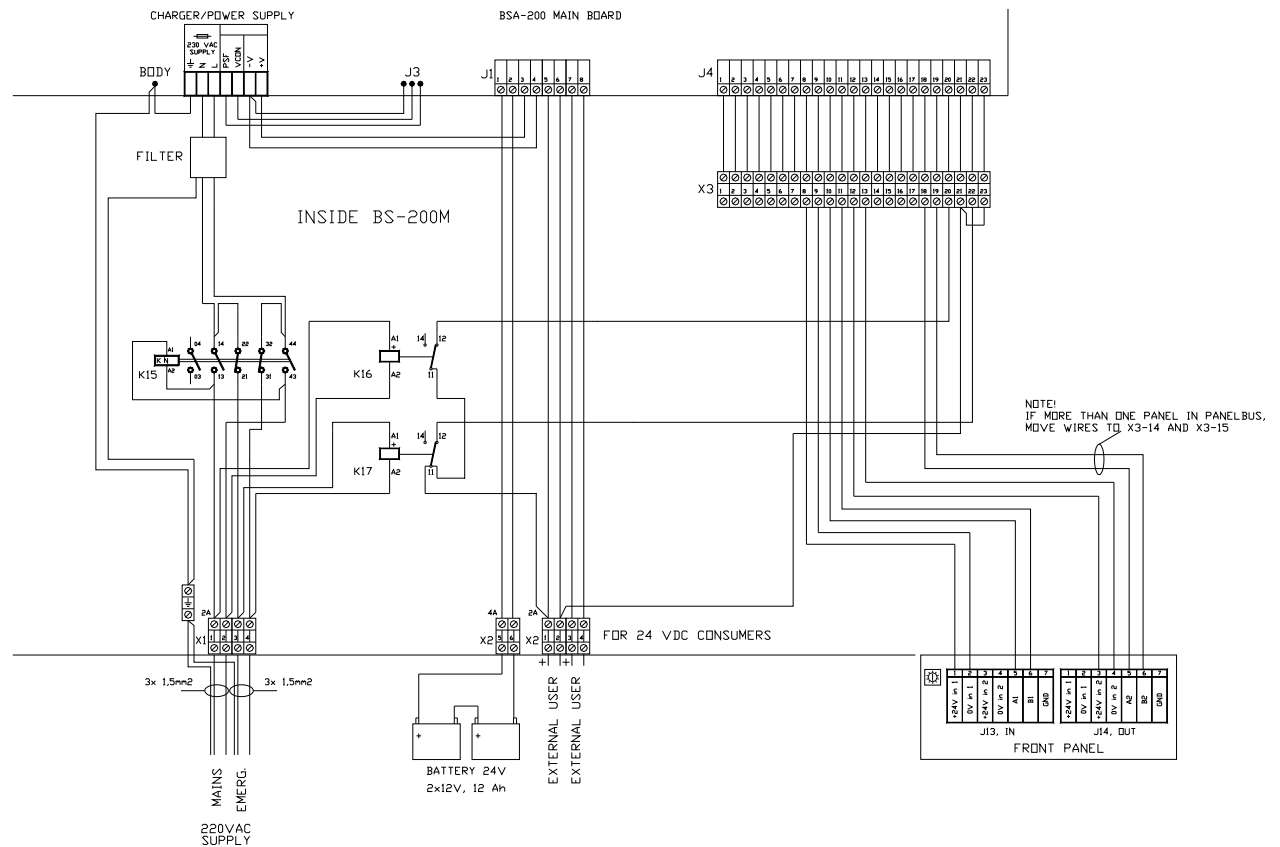
20	Non-monitored Input 1 +	User configurable input. Activates on closing contacts between 24VDC and 0V. Observe polarity.
21	Non-monitored Input 1 -	
22	Non-monitored Input 2 +	
23	Non-monitored Input 2 -	
24	Not in use	
25	Not in use	
26	Not in use	

10.2.2 Detection Loop Connections – Extended Terminal Block



1	Detection Loop 3 out +		For connection of Max 127 detectors/loop units		
2	Detection Loop 3 out -				
3	Detection Loop 3 in +				
4	Detection Loop 3 in -				
5	Detection Loop 4 out +		For connection of Max 127 detectors/loop units		
6	Detection Loop 4 out -				
7	Detection Loop 4 in +				
8	Detection Loop 4 in -				

10.2.3 Internal Wiring

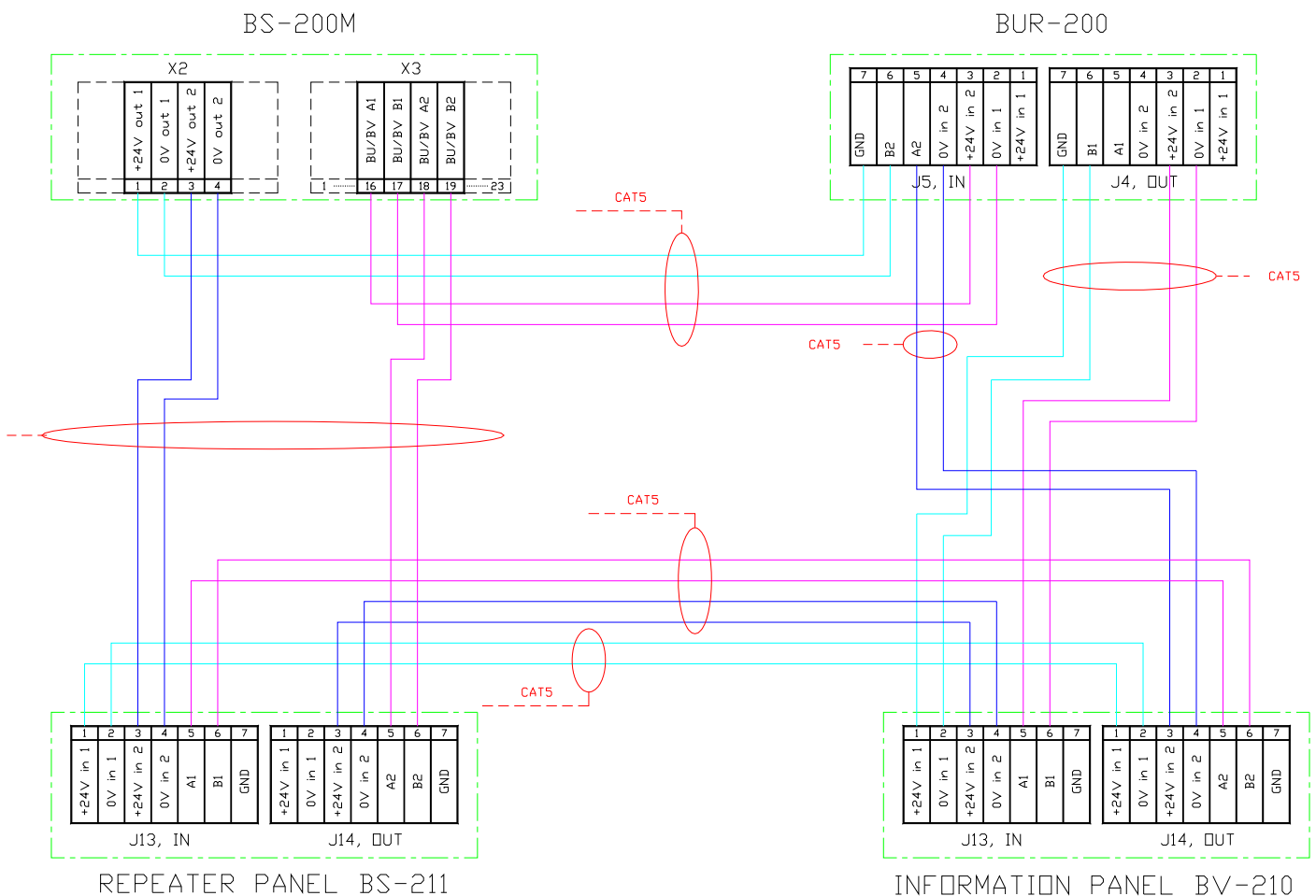


K16 and K17 are connected to non-monitored input 1 and 2 on X3 for mains/energy fault indication. Inputs have to be configured to show the correct fault text on the panel. If the power fault indication is needed on external systems, 2 dedicated outputs can be configured to be activated by non-monitored input 1 and 2 for external power fault indication.

10.3 Panel Bus Connection

The drawing below shows an example of a panel bus interconnecting a Fire Alarm Control Panel BS-200M, a Repeater Panel BS-211, an Information Panel BV-210 and a BUR-200 Mimic Driver.

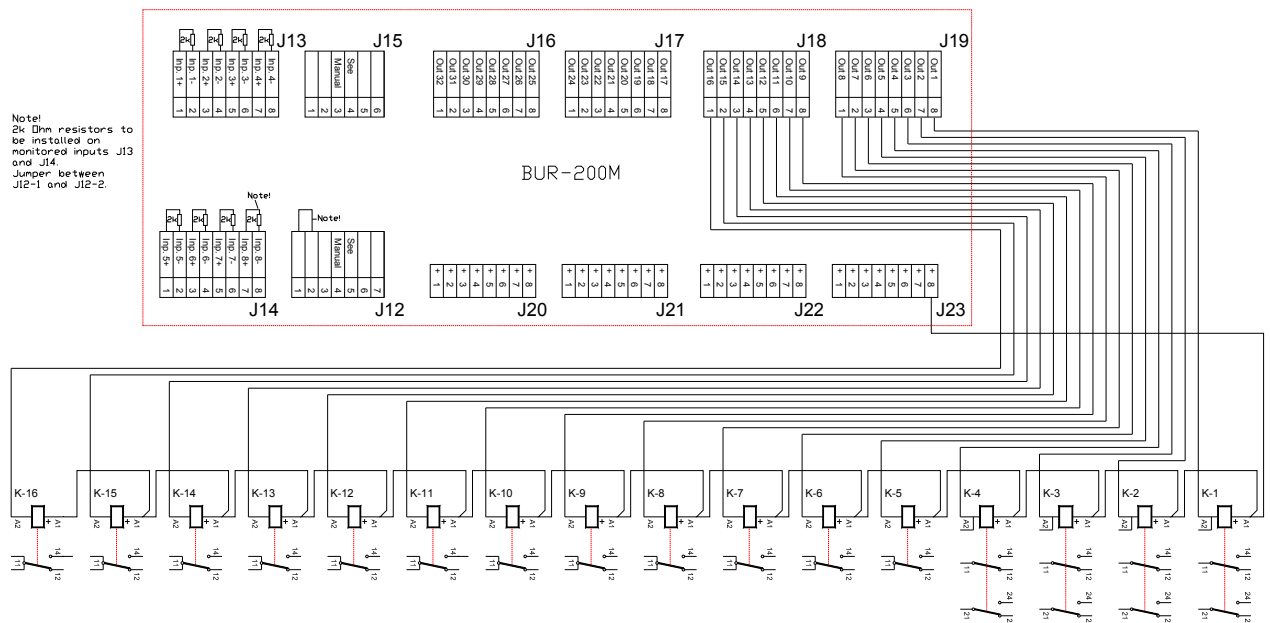
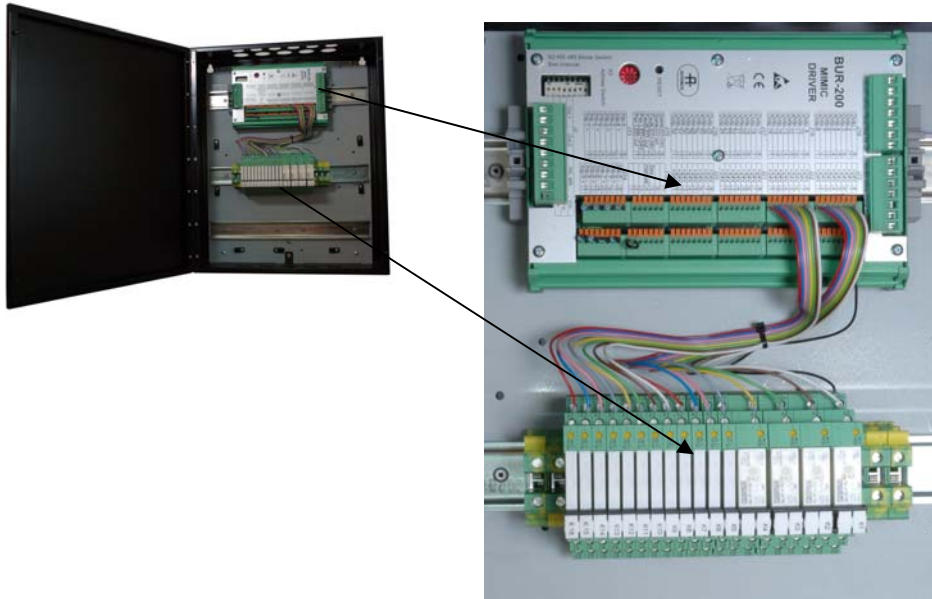
Note that connections depend on the number of panels on the Panel Bus.



EXAMPLE DRAWING!
CONNECTIONS TO BE ADJUSTED
ACCORDING TO NUMBER OF
OPTIONAL PANELS IN THE SYSTEM

10.4 Mimic Cabinet BUR-200

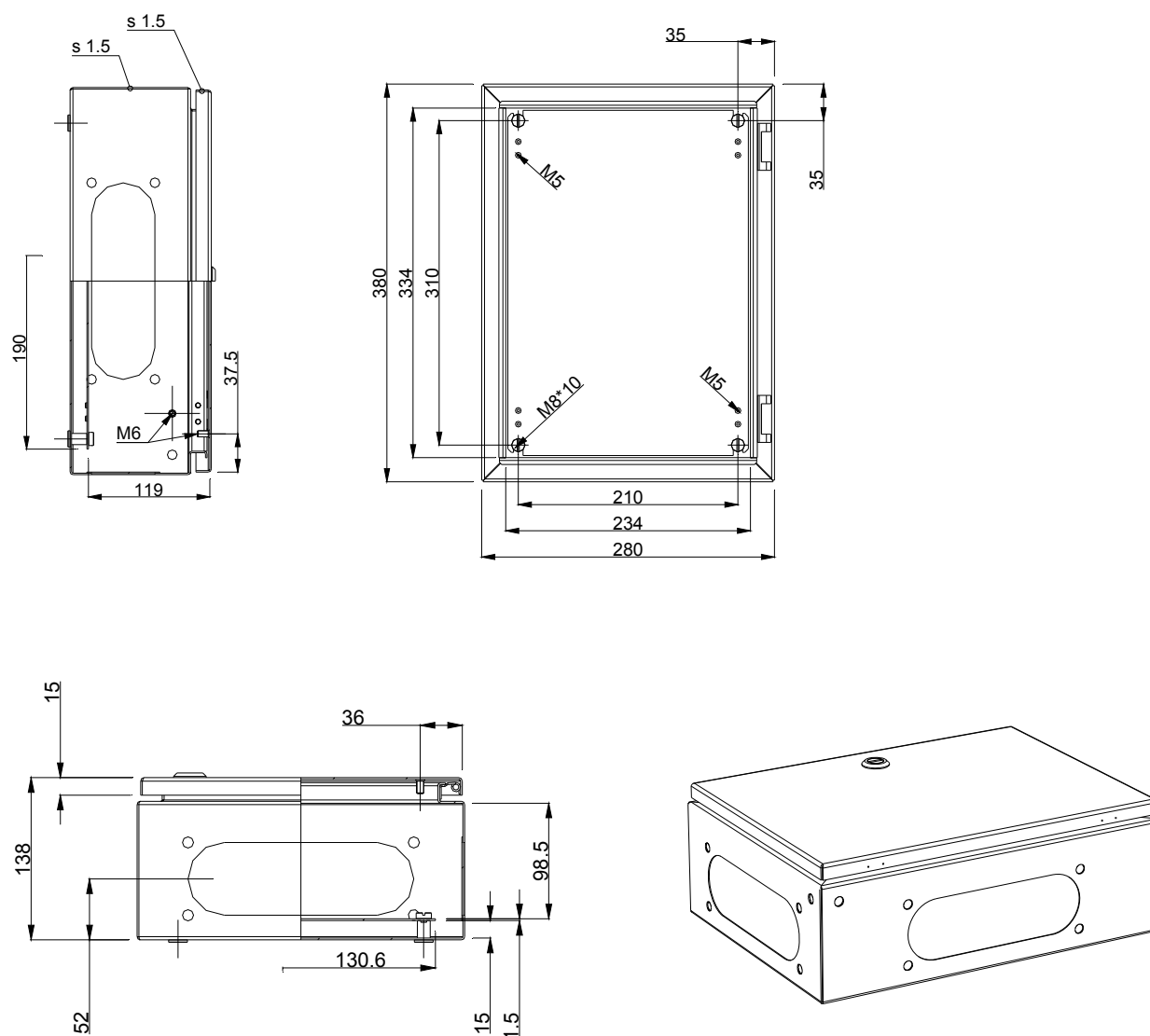
The Mimic Cabinet BUR-200 is specifically designed for use in maritime applications. It includes 1 Mimic Driver BUR-200 and 16 programmable relays.



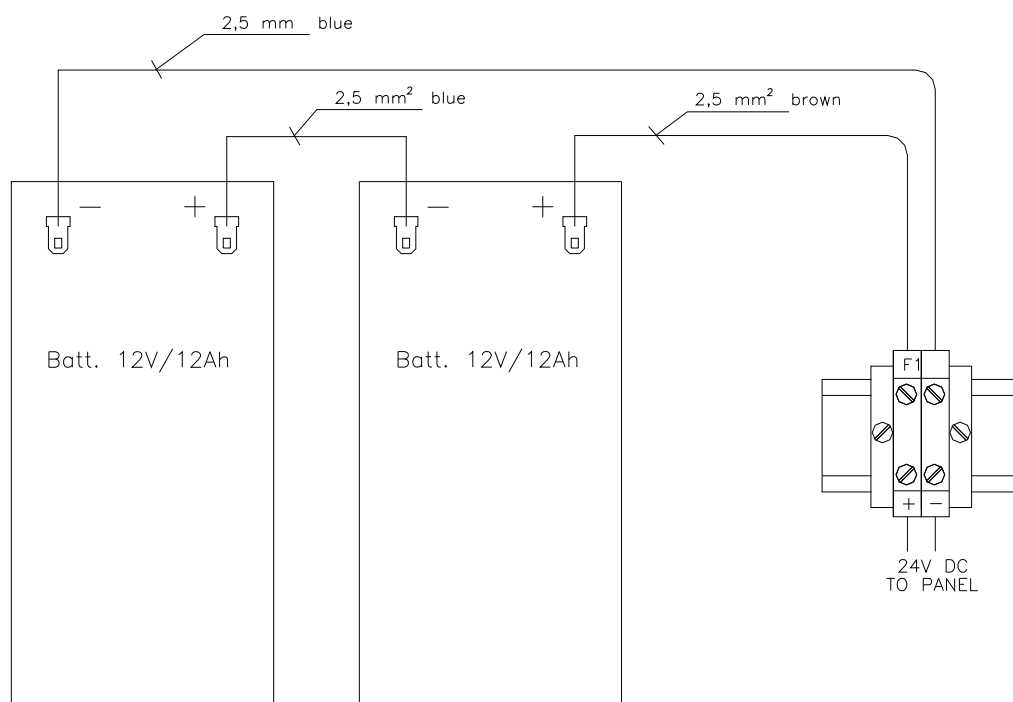
10.5 External Battery Cabinet

Part number	Description
116-234403	Battery Cab. 1x24 DC 12Ah CS

10.5.1 Dimensions



10.5.2 Internal Connections in Battery Cabinet



11. Startup


11.1 Power Up

Autroprime is provided to the user in a pre-configured state. In this state the panel is set to recognize detectors and other loop units connected to the detection loops and the availability of routing equipment, etc. As such, the system is fully functional and ready-to-use simply by turning ON the power.

When the necessary cabling for the Fire Alarm Control Panel and all other panels that are to be interconnected is completed, you are ready to power up the Fire Alarm Control Panel.

- To turn ON the Fire Alarm Control Panel, connect the mains cable, then connect the internal battery cables to the correct terminal points. Refer to *Cable Connections*, chapter 1.1.

The green Power-indicator lights up with a steady green light, and an initialization starts.

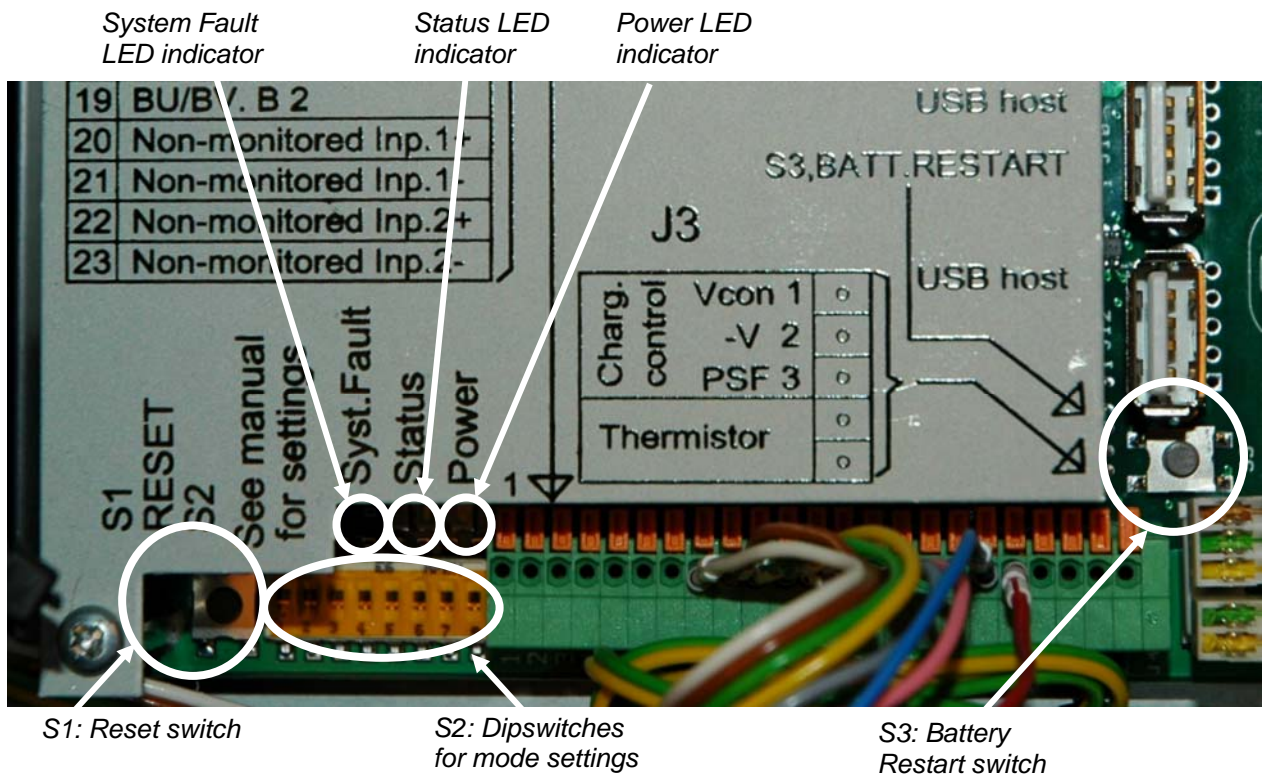
Step	Display Indication / What happens?	Actions to be taken
1	<p>The panel type, firmware version and address are shown in the display.</p> <p>A pulsing cursor starts to move from left to right on the bottom line of the display, indicating the progress of the initialization procedure.</p> <p>The length of the initialization period depends on the number and types of loop units, and whether there are branches on the loops.</p> <p>After a short time, the system will prompt you to select the appropriate language.</p>	<ul style="list-style-type: none"> • To select the appropriate language, press the Enter button, then use the left/right arrow buttons. • To accept the selected language, press the Enter button twice. 
2	The system will then prompt you to enter a password.	<ul style="list-style-type: none"> • Press Enter, use the alphanumeric keypad to type the password and then type it once more to confirm the password.
3	The system will prompt you to set the date and time.	<ul style="list-style-type: none"> • Press Enter, use the alphanumeric keypad to set the time, press the Enter button, then set the date. • To accept, press the Enter button twice.
4	When the initialization procedure is completed, the panel will recognize detectors and other loop units and the system topology is shown in the display. A functional verification of the panel is run to assure the panel itself is fully functional.	<ul style="list-style-type: none"> • Verify that the topology is correct according to the actual installation.

Step	Actions to be taken
5	<ul style="list-style-type: none"> • Turn the key clockwise. • To enter Service Mode, press and hold down the Enter button for a few seconds. • Use the Arrow down button to select Service, then press Enter. • Select System Settings (the uppermost menu selection which is highlighted), then press Enter. • Select Save Configuration (the uppermost menu selection which is highlighted), then press Enter twice. • Type the Operator Name, then press Enter. • Type the Site Configuration Version, then press Enter. • Type a Description, then press Enter. • Press Enter once more to confirm. • • Use the Arrow down button to select Restart System. • Use the left Arrow button to select Accept, then press Enter. • The message “System is now shutting down...” will appear, and the system will reboot automatically. <p>The system topology is shown in the display. Press the Cancel/Back button to reveal the idle display.</p>

The system now functions with the default configuration. Site-specific configuration can now be carried out. For details on system configuration and examples on how to configure a site-specific configuration, refer to the Configuration Handbook.

12. Switches and Indicators on the Main Board

12.1 Overview



12.2 Reset Switch (S1)



Warning:

The reset switch (S1) on the main board is to be pressed **only** if the System Fault indicator on the main board for any reason is lit.

(A normal system reset – which is a quite different operation - is done by pressing the green Reset button on the front panel. Also, if a restart of the panel is required, this is to be done via the Menu entry in Service mode.)

12.3 Dip-switches for Mode Settings (S2)

Switch	Description
S2.1	Boot select, if ON, boot from external memory, if OFF boot from internal boot ROM. In normal operation set to On.
S2.2	Determines the panel variant: BS-200 (standard variant): ON BS-200M (maritime variant, SOLAS): OFF BS-200L (agricultural applications): ON
S2.3	Multi-purpose serial port RS-485/RS-422 failsafe termination, ON/OFF
S2.4	
S2.5	Multi-purpose serial port RS-485/RS-422 line termination, ON/OFF
S2.6	RS-485/RS-422 mode select, if ON, RS-485 mode, if OFF RS-422 mode
S2.7	
S2.8	Must always be OFF.

12.4 Battery Short-circuit Protection

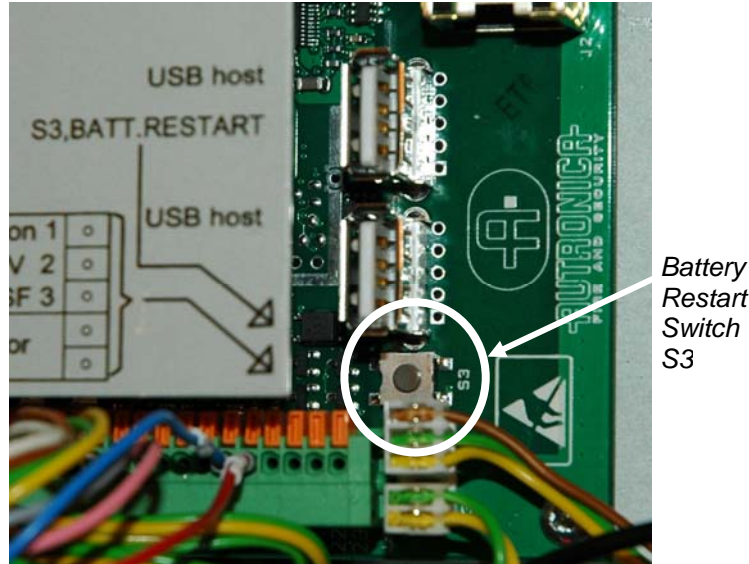
The battery circuit is protected with an automatic resettable electronic fuse that prevents system shutdown in case of short-circuit in the battery circuit.

Internal Cabling

Connector	Description	Power Supply	
J3.1	Charge Control	VCON	
J3.2	Charge Control FB	-V	
J3.3	Mains OK	PSF	
J3.4	Battery Temperature Sense +		Battery Temperature Sensor
J3.5	Battery Temperature Sense -		
J1.3	Charger +24V	+V	
J1.4	Charger 0V	-V	

12.5 Battery Restart after Deep Discharge (S3)

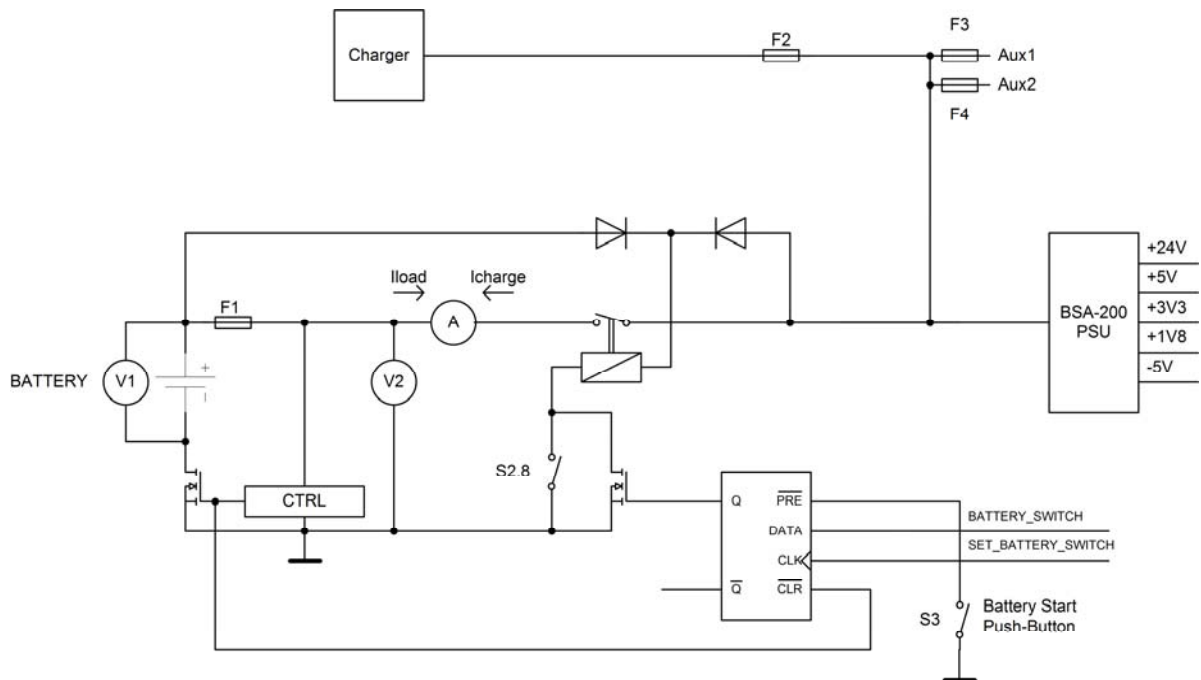
The Battery Restart switch (S3) is to be pressed only in case you need to commission the panel by means of the batteries (if the mains power is not available). A complete hardware reset will take place.



The switch turns on the relay in the battery circuit.

- If the system is run from battery and the battery is replaced, the switch must be operated to restart the system

EN54 part 4 states that if the battery voltage drops below a limit specified by the manufacturer (17V) the battery shall be disconnected to prevent deep discharge. The battery is disconnected using a relay.



12.6 System Fault LED indicator (yellow)

The yellow System Fault indicator is lit if a system fault occurs. The board enters this security mode if the main processor fails to function due to hardware problems on the main board, programme faults or faults in the file system. If such a fault occurs, the reset switch (S1) has to be pressed to regain normal operation of the board. If it is not possible to regain normal operation, the board must be replaced.

12.7 Status LED indicator (red)

Not in use.

12.8 Power LED indicator (green)

The green Power LED indicator is lit when the main board is supplied with the correct power (3,3VDC and 5VDC).

13. Exporting / Importing Configuration Data



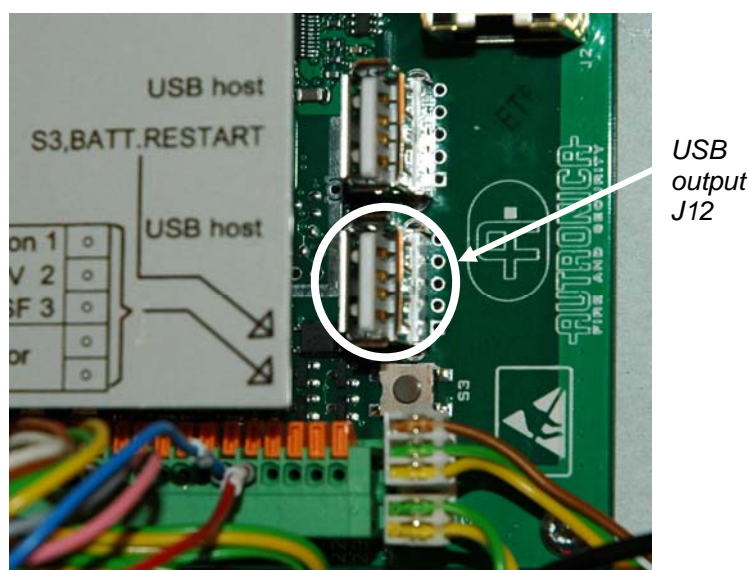
This product contains static-sensitive devices. Please avoid any electrostatic discharge during these operations.

13.1 USB Output

By means of a USB memory stick, configuration data can be exported or imported.

The USB output J12 is used for this purpose. It is easily accessible from the inside of the front panel door.


**Note that the maximum load on the USB port is 100mA.
The USB port is provided with a resettable fuse.**



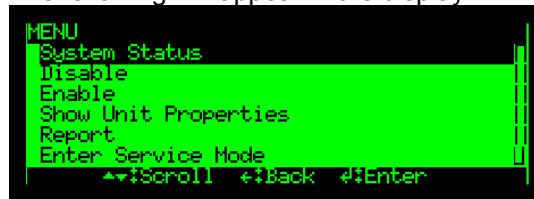
We recommend that the USB-stick that is to be used contains Autronica-related files only.

13.2 Entering the Service Menu

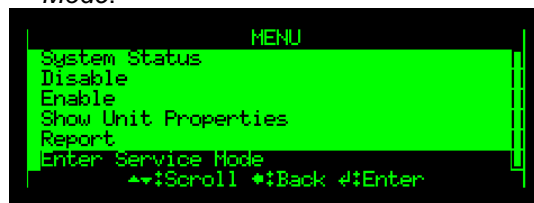


- First, to enter the *Menu Mode* from operation mode or the panel's idle state, press and hold down the Enter button  for a few seconds.

The following will appear in the display:



- Use the arrow down button to scroll down and select *Enter Service Mode*.




- Press Enter twice, then use the alphanumeric keypad and type the password that has been selected during commissioning (4 characters).

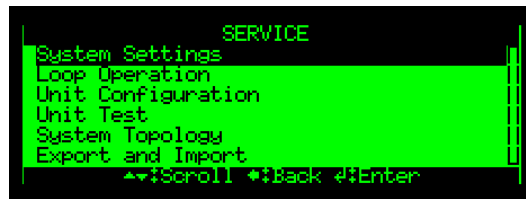


- To accept the password, press Enter once more.

The menu selections *Service* and *Exit Service Mode* now appear in the display.



To enter the *Service* menu, use the arrow down button to scroll down and select *Service*, then press the Enter button .



13.3 Exporting Configuration Data

- To export configuration data, enter the service menu (see chapter 13.2), select the Export and Import menu, then perform the command Export Configuration.

This command allows you to export configuration files from the system to a USB memory stick.

Make sure to save all recent configuration changes (using the Save Configuration command in the System Settings menu, chapter 13.7) before executing the Export Configuration command.



From the Service Menu, perform the following:

- Use the arrow down button to scroll downwards to Export and Import, then press Enter.
- Press the arrow down button to select Export Configuration, then press Enter.

The following message will appear:

”Copy the last saved configuration file to a USB device.”

- To execute the command, use the left arrow button to select Accept, then press Enter.

13.4 Importing Configuration Data

- To import configuration data, enter the service menu (see chapter 13.2), select the Export and Import menu, then perform the command Import Configuration.

This command allows you to import configuration files from a USB memory stick.

The imported configuration will have no impact on the running system. To use the imported configuration the system must be restarted (Restart System, chapter 13.6).



From the Service Menu, perform the following:

- Use the arrow down button to scroll downwards to Export and Import, then press Enter.
- Press the arrow down button to select Import Configuration, then press Enter.

The following message will appear:

”Import configuration files from the USB device. The imported configuration will not have any impact on the running system. To use the imported configuration, please restart the system.”

- To execute the command, press the left arrow button to select Accept, then press Enter.

13.5 Backup Current Configuration

- To perform an internal backup of a current configuration, enter the service menu (see chapter 13.2), then perform the command Backup Current Configuration.

This command allows you to take an internal backup of the current configuration.

Make sure to save all recent configuration changes (using the Save Configuration command in the System Settings menu, chapter 13.7) before executing the Backup Current Configuration command.



From the Service Menu, perform the following:

- Use the arrow down button to scroll downwards to Export and Import, then press Enter.
- Press the arrow down button to select Backup Current Configuration, then press Enter.

The following message will appear:

” Create backup of the current configuration. Please save the configuration if configuration has been changed”.

- To execute the command, use the left arrow button to select Accept, then press Enter.

13.6 Select Configuration & Restart System

This command allows you to restart the system by using one of the configuration files available (current configuration, imported configuration or backup configuration).



From the Service Menu, perform the following:

- Use the arrow down button to scroll downwards to Export and Import, then press Enter.
- Press the arrow down button to select Select Configuration & Restart System, then press Enter twice.

The following message will appear:

” Restart the system by using one of the configurations available”.

- If several configurations are available, use the left/right arrow buttons to select the configuration (Current Configuration, Imported Configuration or Backup Configuration).
- Press Enter.
- To execute the command, press Enter once more.

13.7 Save Configuration

Each time a configuration has been changed, this command should be run. The changes will not become effective until a Restart System command is performed.



From the Service Menu, perform the following:

- Press Enter to select System Settings.
- Press Enter twice to select Save Configuration.
- Type a new Site Name, or accept the existing one by pressing the arrow down button.
- Type a new Operator Name, or accept the existing one by pressing the arrow down button.
- Press Enter to type a new Site Configuration Version then press Enter, or accept the existing one by pressing the arrow down button.
- Press Enter to type a new Description then press Enter, or accept the existing one by pressing the arrow down button.
- To confirm, press Enter.

14. Changes on the Detection Loop

14.1 Typical Scenarios

This chapter provides information on how changes on the detection loop affect the system during normal operation.

The table below gives an overview of typical scenarios for various examples, including the actions to be carried out and the panel indication (visual/audible).

Note that some fault messages may not appear if a change is done rapidly (for example, a unit is removed and another unit is inserted rapidly). However, the procedures will be the same, regardless of how quick the changes are done.

Before a point is to be added or removed from the loop (for example, a new detector base for a detector is added or an existing is removed), the detection loop in question has to be disabled after entering service mode. When the change has been done, the detection loop has to be enabled.

14.2 Remove a unit and Insert the same unit

Scenario during normal operation / actions to be carried out		Panel indication (visual/audible)
For example, remove an optical smoke detector BH-300 and replace the same one.		
1	Remove the detector from its base.	Observe fault warnings "Open Circuit in negative wire" and "Loop Unit not responding"
2	Acknowledge all faults.	Buzzer off, indicator to steady
3	Insert the same detector.	No change
4	Operate reset.	Panel to quiescent condition.

14.3 Remove a unit and insert another unit of the same type

Scenario during normal operation / actions to be carried out		Panel indication (visual/audible)
For example, remove an optical smoke detector BH-300 and insert another optical smoke detector BH-300.		
1	Remove the detector from its base.	Observe fault warnings "Open Circuit in negative wire" and "Loop Unit not responding"
2	Acknowledge all faults.	Buzzer off, indicator to steady
3	Insert another detector of same type in the base.	Observe fault warning "Loop Unit Replaced"
4	Acknowledge the fault.	Buzzer off, indicator to steady
5	Operate reset.	Panel to quiescent condition.

14.4 Remove a unit and insert another unit of a different type

Scenario during normal operation / actions to be carried out		Panel indication (visual/audible)
For example, remove an optical smoke detector BH-300 and insert a heat detector BD-300.		
1	Remove the detector from its base.	Observe fault warnings "Open Circuit in negative wire" and "Loop Unit not responding"
2	Acknowledge all faults.	Buzzer off, indicator to steady
3	Insert a detector of a different type in the base.	Observe fault warnings "Unit Replaced. Transfer Config?" "Configuration mismatch"
4	Acknowledge the faults.	Buzzer off, indicator to steady
5	Enter service mode. Select fault warning "Loop Unit not responding" .	
6	Select function "Remove Unit from Configuration".	
7	Select the fault warning: "Unit Replaced. Transfer Config."	
8	If you want to keep the previous properties, select the function "Transfer Config" (the name and zone and control functions will be transferred). If you want to change the properties, select unit configuration in this menu instead.	
9	Configure the class settings manually.	
10	In service menu, select System Settings/Save Configuration, then Restart System.	After restart of system observe quiescent condition on panel.

14.5 Add a new unit to the detection loop

Scenario during normal operation / actions to be carried out		Panel indication (visual/audible)
For example, an optical smoke detector BH-300 is added to the detection loop.		
1	Enter service mode and disable the detection loop in question.	
2	Mount a new base on the detection loop.	
3	Insert the new detector in its base.	
4	Enable the detection loop.	Observe Fault Warning "Configuration Mismatch"
5	Acknowledge all faults.	Buzzer off, indicator to steady
6	Add the appropriate properties to the new unit (Service Menu/Unit Configuration/Points).	
7	In service menu, select System Settings/Save Configuration-Restart System. Acknowledge restart of system.	After restart of system observe quiescent condition on panel.
8	From the menu check the loop topology.	Observe that the topology is in accordance with the new detector added.

14.6 Remove a loop unit from the detection loop

Scenario during normal operation / actions to be carried out		Panel indication (visual/audible)
For example, an existing heat detector BD-300 is removed from the detection loop.		
1	Enter service mode and disable the detection loop in question.	
2	Remove the detector from its base and repair the cable break.	
3	Enable the detection loop.	Observe fault warning "Loop Unit not responding"
4	Acknowledge all faults.	Buzzer off, indicator to steady
5	Enter service mode. Select fault warning "Loop Unit not responding".	
6	Select function "Remove Unit from Configuration".	
7	In service menu, select System Settings/Save Configuration, then Restart System.	After restart of system observe quiescent condition on panel.
8	From the menu check the loop topology.	Observe that the removed detector is no longer found in the topology.

14.7 Major Changes / Clear Loop Config. - Restart System

Note that, when major changes are to be done on an existing detection loop, i.e. a large amount of points on an existing detection loop are to be removed and others are to be added, it is recommended to use the command Clear Loop Config. - Restart System. This command allows you to delete *all* points on a *selected* detection loop, meaning that you can start from the beginning configuring the detection loop in question.

For further information, refer to the Configuration Handbook.

15. Changes on the Panel Bus

15.1 Typical Scenarios

This chapter provides information on how changes are to be carried out on the panel bus (typical scenarios), plus the panel indication (visual/audible) and the results of the changes.

15.2 Adding an extra panel to the Panel Bus

Step	Task	Expected results
For example, an Information Panel BV-210 is added to the Panel Bus.		
1	The system is to be in quiescent condition. Enter access level 3 (service mode).	
2	Add a new panel to the panel bus. Make sure that the panel's address (refer to Addressing Panels, chapter 6) is not already used for other existing panels.	Within 100 seconds the Fault indicator starts to pulse and the internal buzzer is turned on. The panel display shows the following message: "Panel topology mismatch"
3	Press the Mute Panel button	The internal buzzer is turned off.
4	Acknowledge the fault by pressing the Function button, then press the Enter button to accept.	The Fault indicator goes steady.
5	Save the configuration and restart the system	The system restarts. The system starts in quiescent condition, and the new panel is operative.

15.3 Removing a panel from the Panel Bus

Step	Task	Expected results
For example, a Fire Brigade Panel BU-210 is removed from the Panel Bus.		
1	The system is to be in quiescent condition. Enter access level 3 (service mode).	
2	Remove a panel from the panel bus by disconnecting the cables from the panel.	Within 100 seconds the Fault indicator starts to pulse and the internal buzzer is turned on. The panel display shows the following message: "Panel not responding" "Communication redundancy lost" "Configuration mismatch"
3	Press the Mute Panel button.	The internal buzzer is turned off.
4	Acknowledge all the faults by pressing the Function button, select Acknowledge All, then press Enter to accept.	The Fault indicator goes steady.
5	Connect the wires where the break is.	
6	Wait up to 100 seconds, then press the Reset button.	The fault "communication redundancy lost" will disappear. The faults "Panel not responding" and "Configuration mismatch" will reappear.
7	Press the Mute Panel button	The internal buzzer is turned off.
8	Acknowledge all the faults by pressing the Function button, select Acknowledge All, then press Enter to accept.	The Fault indicator goes steady.
9	Save the configuration and restart the system.	The system restarts. The system starts in quiescent condition.

15.4 Replacing a panel of the same type and with the same address

Step	Task	Expected results
For example, a Repeater Panel BS-211 is to be replaced by another Repeater Panel BS-211 with the same address.		
1	The system is to be in quiescent condition. Enter access level 3 (service mode).	
2	Replace a panel with another one of the same type and the <i>same</i> address.	Within 100 seconds the Fault indicator starts to pulse and the internal buzzer is turned on.
3	Press the Mute Panel button.	The internal buzzer is turned off.
4	Acknowledge the fault by pressing the Function button, then press the Enter button to accept.	The Fault indicator goes steady.

Step	Task	Expected results
5	Save the configuration and restart the system.	The system restarts. The system starts in quiescent condition.

15.5 Replacing a panel of the same type but with a different address

Step	Task	Expected results
For example, a Repeater Panel BS-211 is to be replaced by another Repeater Panel BS-211 with a different address.		
1	The system is to be in quiescent condition. Enter access level 3 (service mode).	
2	Replace a panel with another one of the same type but with a <i>different</i> address (not used by any other panels on the panel bus).	Within 100 seconds the Fault indicator starts to pulse and the internal buzzer is turned on.
3	Press the Mute Panel button.	The internal buzzer is turned off.
4	Acknowledge the fault by pressing the Function button, then press the Enter button to accept.	The Fault indicator goes steady.
5	Save the configuration and restart the system.	The system restarts. The system starts in quiescent condition.

15.6 Replacing a panel of a different type

Step	Task	Expected results
For example, a Repeater Panel BS-211 is to be replaced by an Information Panel BV-210.		
1	The system is to be in quiescent condition. Enter access level 3 (service mode).	
2	Replace a panel with another one of a different type.	Within 100 seconds the Fault indicator starts to pulse and the internal buzzer is turned on. The panel display shows the following message: "Panel not responding" "Configuration mismatch"
3	Press the Mute Panel button.	The internal buzzer is turned off.
4	Acknowledge all the faults by pressing the Function button, select Acknowledge All, then press Enter to accept.	The Fault indicator goes steady.
5	Save the configuration and restart the system.	The system restarts. The system starts in quiescent condition. The new panel is operative.

16. Appendix

16.1 Text Foils

Autoprime supports the following languages (listed in alphabetical order):

Danish (DK)
 Dutch (NL)
 English (GB)
 Finnish (SF)
 French (F)
 German (D)
 Hungarian (H)
 Icelandic (IS)
 Italian (I)
 Norwegian (N)
 Polish (PL)
 Portuguese (Brazilian) (BR)
 Russian (RUS)
 Spanish (E)
 Swedish (S)

The text foils in the relevant language are to be inserted in the correct locations (there are two different types of foils). The table below gives an overview of the different textfoils (part numbers for indicators and keypads) and for the various languages (the letters XX indicate the language, DK, NL, etc.).

Text foils for:	Indicators	Keypad
Operator Panel BS-210 (integrated part of BS-200/BS-200M/BS-200L) and Repeater Panel (BU-200)	E-2717/XX-1	E-2717/XX-2
Fire Brigade Panel (BU-210)	E-2721/XX-1	E-2721/XX-2
Information Panel (BV-210)	E-2735/XX-1	E-2735/XX-2
"Larmlagringspanel" (BU-211)	E-2736/XX-1	E-2736/XX-2

17. Reader's Comments

Please help us to improve the quality of our documentation by returning your comments on this manual:

Title: *Installation Handbook, Autroprime Interactive Fire Detection System,*

Ref. No.: *116-P-APRIME-INSTALL/DGB Rev. E, 2011-08-16*

Your information on any inaccuracies or omissions (with page reference):

Please turn the page

Suggestions for improvements

Thank you! We will investigate your comments promptly.

Would you like a written reply? ☐ Yes ☐ No

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Company: -----

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Please send this form to: Autronica Fire and Security AS
N-7483 Trondheim
Norway

Tel: + 47 73 58 25 00

Fax: + 47 73 58 25 01

www.autronicafire.com

Autronica Fire and Security AS is an international company, headquartered in Trondheim, one of the largest cities in Norway. The company is owned by United Technologies Corporation and employs more than 319 persons with experience in developing, manufacturing and marketing of fire safety equipment. Our products cover a broad range of systems for integrated solutions, including fire detection systems, integrated fire and gas detection systems, control and presentation systems, voice alarm systems, public address systems, emergency light systems, plus suppression systems.

All products are easily adaptable to a wide variety of applications, among others, hospitals, airports, churches and schools, as well as to heavy industry and high-risk applications such as power plants, computer sites and offshore installations, world wide.

The company's strategy and philosophy is plainly manifested in the business idea:
Protecting life, environment and property.

Quality Assurance

Stringent control throughout Autronica Fire and Security AS ensures the excellence of our products and services. Our products are CE marked and developed for worldwide standards and regulations, and conform to the CEN regulation EN54. Our quality system conforms to the Quality System Standard NS-EN ISO 9001:2000 and is valid for the following product and service ranges: marketing, sales, development, engineering, manufacture, installation, commissioning and servicing of suppression, integrated fire and gas detection and alarm systems, plus petrochemical, oil and gas instrumentation systems for monitoring and control.

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